Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-198



F-35 Joint Strike Fighter Aircraft (F-35)

As of FY 2016 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President’s Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

F-35 Joint Strike Fighter Aircraft (F-35)

DoD Component

DoD

Joint Participants

United States Navy; United States Air Force; United States Marine Corps; United Kingdom; Italy; The Netherlands; Turkey; Canada; Australia; Denmark; Norway

The F-35 Program is a joint DoD program for which Service Acquisition Executive Authority alternates between the Department of the Navy (DoN) and the Department of the Air Force, and currently resides with the DoN.

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References

F-35 Aircraft

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 26, 2012

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 18, 2014

F-35 Engine

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 26, 2012

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 18, 2014

Mission and Description

The F-35 Joint Strike Fighter Aircraft (F-35) Program will develop and field an affordable, highly common family of next-generation strike aircraft for the U.S. Navy, Air Force, Marine Corps, and allies. The three variants are the F-35A; F-35B; and the F-35C. The F-35A will be a stealthy multi-role aircraft, primarily air-to-ground, for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18A/C/D for the Marine Corps. The F-35C will provide the U.S. Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. The planned DoD F-35 Fleet will replace the joint services' legacy fleets. The transition from multiple type/model/series to a common platform will result in a smaller total force over time and operational and overall cost efficiencies.

Executive Summary

The F-35 remains the DoD largest cooperative acquisition program, with eight International Partners participating with the U.S. under Memorandums of Understanding for System Development and Demonstration and Production, Sustainment and Follow-on Development. Additionally, the program currently has three FMS customers. The F-35 program is executing well across the entire spectrum of acquisition, to include development and design, flight test, production, fielding and base stand-up, sustainment of fielded aircraft, and building a global sustainment enterprise.

The F-35 program continues to make solid and steady progress and is moving forward in a disciplined manner. Since the program re-baseline in 2011 the program has remained fundamentally on cost and on schedule to this new baseline. There were many successes as well as challenges in 2014. Successes include: completion of a very successful initial F-35C ship suitability sea trial aboard the USS NIMITZ logging 124 catapult launches, 124 arrestments and 222 touch-and-go landings; completing Block 2B software development; completing Block 2 Air-to-Surface weapons testing; starting Block 3 flight testing; commencing F-35 operations at Marine Corps Air Station Beaufort; continuing aircraft modification operations at Fleet Readiness Center East and at the Ogden Air Logistics Complex, completing production lot 5 aircraft deliveries including completing F-35A deliveries to Eglin Air Force Base (AFB), starting F-35A deliveries to Luke AFB and assigning regional Maintenance, Repair, Overhaul, and Upgrade (MRO&U) capabilities to Partners and FMS customers in Europe and Asia-Pacific.

In June 2014 an F-35A on take-off roll experienced a failure to the third stage rotor. The root cause of the AF-27 incident was due to excessive heat caused by rubbing between engine fan components, which led to a structural failure of the fan. This led to engine parts breaking free at high speed and damaging the aircraft resulting in the fire. Thankfully, the pilot successfully aborted the take-off and exited the aircraft with no injuries. The entire fleet was grounded on July 3, 2014 but flight operations were restored in a limited capacity on July 14, 2014. Return to flight imposed additional restrictions on flight operations including limiting maneuverability in Mach and amount of g-forces the pilot could demand of the aircraft as well as inspections of the engine after every three flight hours. This additional workload and aircraft limitations slowed the pace of developmental testing and added to the maintenance burden in the operational units. Throughout the summer and into the fall, the Joint Program Office (JPO), Service System Commands and industry worked diligently to analyze the problem, prioritize test assets, and open the flight envelope in a safe, methodical fashion. This enabled the enterprise to continue flight testing in portions of the envelope previously restricted, and to provide some relief to the maintainers in the field. One key change was to increase the inspection interval from three to thirteen flight hours. The program was able to determine root cause, and developed an interim solution, a “pre-trenched” rub material that will be implemented in the field starting later this year. Pratt and Whitney (P&W) has agreed to cover the costs for the repairs to engines in the field and the cut-in of the solution to the production line, while the program office will pay for the design activity as per the development contract. The program continues its work on a long-term fix to the engine and expects to review and select from the design solutions this spring, followed by design and qualification testing, and, finally, incorporating the solution into the production line. This work should be done in 2015.

Another technical risk the program continues to monitor is the Autonomic Logistics Information System (ALIS). Because ALIS is such a critical part of the F-35 Air System, it is now treated as if it were its own “weapons system;” the Program has added new systems engineering processes that include periodic design reviews, a new leadership structure, improved lab infrastructure and testing to include warfighter involvement, and a more structured software delivery plan to include metrics. There is evidence of solid improvements over the past two years with better and faster incremental fixes, including updates made with the fielded versions of the software in 2014. Finally, there is a plan to field additional capability including a deployed version of ALIS in support of U.S. Marine Corps IOC in 2015.

The Program has initiated a rigorous Reliability and Maintainability (R&M) program that will establish R&M performance goals, take specific actions to achieve these goals, analyzing field data to make actionable decisions such as redesigning parts, improving repair times, and streamlining and improving maintenance procedures, accelerating aircraft retrofits and modifications to more rapidly improve readiness and to measure these R&M improvements.

From a business perspective, the Government recently awarded the contract for the 8th Production Lot of 43 airplanes and

is preparing to begin negotiations on Lots 9 and 10, which will be negotiated together, similar to Lots 6 and 7. Expectations are that the program will begin negotiations for Lot 11 in 2016. The price of F-35s continues to decline steadily Lot after Lot. For example, the price of a Lot 7 F-35A was 4.3% less than a Lot 6 F-35A aircraft and a Lot 8 F-35A aircraft was 3.6% less than a Lot 7 F-35A, including the engine and profit for both contractors. Reductions are expected to continue into the future and, by 2019, the expected price of an F-35A model, with an engine, and including profit, to cost between $80M and $85M, in 2019 dollars, close to the cost of many fourth generation fighters.

The Program continues to address the establishment of the Global Sustainment posture across Europe, Asia-Pacific, and North America. In 2014, the program began the process for assigning the repair capabilities to our Partner and FMS customers across these three regions. The first of these assignments were announced at the end of 2014 and included the regional MRO&U capabilities for airframes and engines for both the European and Pacific Regions. These initial MRO&U assignments will support near-term F-35 airframe and engine overseas operations and maintenance and will be reviewed and updated in approximately five years. In the European region, F-35 initial airframe MRO&U capability will be provided by Italy by 2018. Should additional airframe MRO&U capability be required, the United Kingdom would be assigned to supplement the existing capability. In the European region, engine heavy maintenance will initially be provided by Turkey, also in 2018, with The Netherlands and Norway providing additional capability approximately two to three years after Turkey's initial capability. In the Pacific region, F-35 airframe MRO&U capability will be provided by Japan for the Northern Pacific and Australia for the Southern Pacific, with both capabilities required by early 2018. For F-35 engine heavy maintenance in the Pacific, the initial capability will be provided by Australia by early 2018, with Japan providing additional capability three to five years later.

On the international front, the program made significant progress with our International Participants, which includes FMS countries. The program is also building two Final Assembly and Checkout Facilities (FACOs) – one in Italy and one in Japan. Today there are aircraft being built on the production line at the FACO in Italy and, sometime in 2015, the Japanese will begin building their own F-35s at their FACO in Japan. No problems are anticipated with either facility at this time. Continuing on this international theme, the nation of South Korea signed a commitment to purchase 40 F-35A aircraft starting in Lot 10 and Israel added 14 more F-35As to their original 19-aircraft order last year, with a future additional purchase in two to three years. There are ongoing discussions with a number of other nations, to include Singapore and Spain, concerning FMS. Additionally, Canada has decided to wait until after its national elections this spring before deciding on its selection of a fighter replacement, although it remains a full Partner on the F-35 program. Finally, expectations are that Denmark will make its final fighter replacement selection sometime in the summer of 2015.

Affordability remains our number one priority. The program must finish development within the time and money the program has, must continue to drive the cost of producing F-35s down, and must continue to attack the long term life cycle costs of the F-35 weapon system. The program has engaged in a multi-pronged approach to reduce costs across production, and O&S. First, the program has an agreement with our contractor partners Lockheed Martin, Northrup Grumman and BAE Systems on reducing aircraft production costs through an effort the program has termed the "Blueprint for Affordability" and reducing cost on the F135 engine through Pratt & Whitney's (P&W) current 'War on Cost" efforts and future planned Blueprint for Affordability activities. The goal of which is to reduce the flyaway cost of the F-35A to between $80M and $85M by 2019. The effort involves the contractors investing funds upfront on cost reduction initiatives mutually agreed upon by the government and the contractor. The combination of Blueprint for Affordability, the Cost War Room efforts and the reliability and maintainability program have provided a viable path to reducing both the production cost of the aircraft and the long-term operations and sustainment costs of the F-35 weapon system. Overall, the SAR cost estimates are trending in the right direction. In aggregate, comparing SAR 13 to SAR 14, at the total cost summary level, the SAR 14 estimate reflects downward cost at approximately -$7.5B. This reflects Aircraft subprogram down approximately -$5.8B and Engine subprogram down approximately -$1.6B. In addition the PAUC and APUC were reduced. Finally, CAPE's O&S cost estimate remains the same, but the JPO O&S estimate is down approximately -$57.8B.

In March 2012, in conjunction with the Milestone B decision, certification was made pursuant to section 2366b of title 10, United States Code (U.S.C.). However, at that time, the MDA waived provision (3)(c), which certifies that the JROC has accomplished its duties pursuant to section 181(b) of title 10, U.S.C., including an analysis of the operational requirements for the program. The JROC accomplished the bulk of its duties under section 181(b); however, because the IOC dates remained "TBD" by the Services, a waiver has been in place. In June 2013, the Services sent a joint report to the U.S. Congress detailing their IOC requirements and dates; however, until the USD(AT&L) certifies that this provision has been satisfied, the waiver remains in place. The Department will continue to review the F-35 program at least annually until the

certification requirement for this provision is satisfied.

Software development and integration continue to be the highest risks the program faces as it completes development. Failure of an engine component that led to an aircraft fire and aborted take-off at Eglin AFB in June 2014 placed additional burdens on the program. Other areas that are of high interest and have warranted specific management attention include ALIS, overall R&M, and beyond first-life durability testing. These are typical challenges faced during a development program and progress has been made against each of these in 2014.

In summary, the F-35 program is showing steady progress in all areas – including development, flight test, production, maintenance, and stand-up of the global sustainment enterprise. The program is currently on the right track and will continue to deliver on the commitments that have been made to the F-35 Enterprise. As with any big, complex development program, there will be challenges and obstacles. However, we have the ability to overcome any current and future issues, and the superb capabilities of the F-35 are well within reach for all of us.

Threshold Breaches

F-35 Aircraft

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

F-35 Engine

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule


SAR Baseline Current Objective
APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17 '18 '19
F-35 Aircraft
Concept Demonstration Co...
Milestone B
EMD Contract Award
Preliminary Design Review
CDR
CDR (CTOL&Common)
CDR (STOVL&Common)
CDR (CV&Common)
DAE (IPR 1)
1st Flt CTOL
DAE (IPR 2)
1st Flt STOVL
1st Flt CV
1st Production Aircraft Deliv...
Milestone B Re-approval
Block 2B Fleet Release
USMC IOC
USAF IOC
Block 3F Fleet Release
USN IOC
Completed IOT&E
Full Rate Production Decision
DAB Milestone C
F-35 Engine
See Note

F-35 Aircraft

Schedule Events					
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	
Concept Demonstration Contract Award	Nov 1996	Nov 1996	Nov 1996	Nov 1996	
Milestone B	Oct 2001	Oct 2001	Apr 2002	Oct 2001	
EMD Contract Award	Oct 2001	Oct 2001	Oct 2001	Oct 2001	
Preliminary Design Review	Apr 2003	Mar 2003	Mar 2003	Mar 2003	(Ch-1)
CDR					
CDR (CTOL&Common)	Feb 2006	Feb 2006	Feb 2006	Feb 2006	
CDR (STOVL&Common)	Feb 2006	Feb 2006	Feb 2006	Feb 2006	
CDR (CV&Common)	Jun 2007	Jun 2007	Jun 2007	Jun 2007	
DAE (IPR 1)	Mar 2006	Mar 2006	Mar 2006	Mar 2006	
1st Flt CTOL	Dec 2006	Dec 2006	Dec 2006	Dec 2006	
DAE (IPR 2)	Apr 2007	Apr 2007	Apr 2007	Apr 2007	
1st Flt STOVL	Jun 2008	Jun 2008	Jun 2008	Jun 2008	
1st Flt CV	Jun 2010	May 2010	May 2010	May 2010	(Ch-1)
1st Production Aircraft Delivered	May 2011	May 2011	May 2011	May 2011	
Milestone B Re-approval	Mar 2012	Nov 2011	May 2012	Mar 2012	
Block 2B Fleet Release	Mar 2015	Mar 2015	Sep 2015	Jun 2015	
USMC IOC	TBD	Jul 2015	Dec 2015	Jul 2015	
USAF IOC	TBD	Aug 2016	Dec 2016	Aug 2016	
Block 3F Fleet Release	Aug 2017	Aug 2017	Feb 2018	Aug 2017	
USN IOC	TBD	Aug 2018	Feb 2019	Aug 2018	
Completed IOT&E	Feb 2019	Feb 2019	Aug 2019	Feb 2019	
Full Rate Production Decision	Apr 2019	Apr 2019	Oct 2019	Apr 2019	
DAB Milestone C	Apr 2019	Apr 2019	Oct 2019	Apr 2019	

Change Explanations

(Ch-1) The current estimate for the Preliminary Design Review has changed from April 2003 to March 2003 to reflect actual dates. The current estimate for the 1st Flight CV has changed from June 2010 to May 2010 to reflect actual dates.

Acronyms and Abbreviations

CDR - Critical Design Review
CTOL - Conventional Takeoff and Landing
CV - Aircraft Carrier Suitable Variant
Flt - Flight
IOT&E - Initial Operational Test and Evaluation
IPR - Interim Progress Review
STOVL - Short Takeoff and Vertical Landing
USAF - United States Air Force
USMC - United States Marine Corps
USN - United States Navy

F-35 Engine

Schedule Events				
Events	**SAR Baseline Development Estimate**	**Current APB Development Objective/Threshold**		**Current Estimate**
See Note	N/A	N/A	N/A	N/A

Change Explanations

None

Notes

1/ Schedule milestones for the F-35 Engine subprogram are captured as part of the system-level schedule milestones reflected in the F-35 Aircraft subprogram.

Performance

F-35 Aircraft

Performance Characteristics

SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate	
STOVL Mission Performance - STO Distance Flat Deck					
With four 1000# JDAMs and two internal AIM-120s, full expendables, execute a 600 foot (450 UK STOVL) STO from LHA, LHD, and aircraft carriers (sea level, tropical day, 10 kts operational WOD) and with a combat radius of 550 nm (STOVL profile). Also must perform STOVL vertical landing with two 1000# JDAMs and two internal AIM-120s, full expendables, and fuel to fly the STOVL Recovery profile.	With four 1000# JDAMs and two internal AIM-120s, full expendables, execute a 600 foot (450 UK STOVL) STO from LHA, LHD, and aircraft carriers (sea level, tropical day, 10 kts operational WOD) and with a combat radius of 550 nm (STOVL profile). Also must perform STOVL vertical landing with two 1000# JDAMs and two internal AIM-120s, full expendables, and fuel to fly the STOVL Recovery profile.	With two 1000# JDAMs and two internal AIM-120s, full expendables, execute a 600 foot (450 UK STOVL) STO from LHA, LHD, and aircraft carriers (sea level, tropical day, 10 kts operational WOD) and with a combat radius of 450 nm (STOVL profile). Also must perform STOVL vertical landing with two 1000# JDAMs and two internal AIM-120s, full expendables, and fuel to fly the STOVL Recovery profile.	TBD	Execute 569 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 456nm	(Ch-1)
Combat Radius NM -CTOL Variant					
690	690	590	TBD	614	(Ch-1)
Combat Radius NM -STOVL Variant					
550	550	450	TBD	456	
Combat Radius NM -CV Variant					
730	730	600	TBD	610	
Mission Reliability - CTOL Variant					
98%	98%	93%	TBD	97%	
Mission Reliability - CV Variant					
98%	98%	95%	TBD	98%	
Mission Reliability - STOVL Variant					
98%	98%	95%	TBD	98%	
Logistics Footprint - CTOL Variant					
Less than or equal to 6 C-17 equivalents	Less than or equal to 6 C -17 equivalents	Less than or equal to 8 C -17 equivalent loads	TBD	Less than or equal to 6 C-17 equivalents	

Logistics Footprint - CV Variant				
Less than or equal to 34,000 cu ft., 183 ST	Less than or equal to 34,000 cu ft., 183 ST	Less than or equal to 46,000 cu ft., 243 ST	TBD	Less than or equal to 29,410 cu ft., 243 ST
Logistics Footprint - STOVL Variant				
Less than or equal to 4 C-17 equivalents	Less than or equal to 4 C -17 equivalents	Less than or equal to 8 C -17 equivalent loads	TBD	Less than or equal to 5 C-17 equivalents
Logistics Footprint - STOVL Variant L-Class				
Less than or equal to 15,000 cu ft, 104 ST	Less than or equal to 15,000 cu ft, 104 ST	Less than or equal to 21,000 cu ft, 136 ST	TBD	Less than or equal to 17,500 cu ft, 102 ST
Sortie Generation Rates - CTOL Variant				
4.0/3.0/2.0 2.5 ASD	4.0/3.0/2.0 2.5 ASD	3.0/2.0/1.0 2.5 ASD	TBD	4.0/3.0/2.0 2.5 ASD
Sortie Generation Rates - CV Variant				
4.0/3.0/1.0 1.8 ASD	4.0/3.0/1.0 1.8 ASD	3.0/2.0/1.0 1.8 ASD	TBD	4.0/3.0/1.0 1.8 ASD
Sortie Generation Rates - STOVL Variant (USMC)				
6.0/4.0/2.0 1.1 ASD	6.0/4.0/2.0 1.1 ASD	4.0/3.0/1.0 1.1 ASD	TBD	6.0/4.0/2.0 1.1 ASD
CV Recovery Performance (Vpa)				
Vpa. Maximum approach speed (Vpa) at required carrier landing weight (RCLW) of less than 140 knots.	Vpa at required carrier landing weight (RCLW) of less than 140 knots.	Vpa at required carrier landing weight (RCLW) of less than 145 knots.	TBD	Vpa. Maximum approach speed (Vpa) at required carrier landing weight (RCLW) of less than 144 knots.

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

Operational Requirements Document (ORD) Change 3 dated August 19, 2008 as modified by Joint Requirements Oversight Council Memorandum 040-12 dated March 16, 2012

Change Explanations

(Ch-1) The biggest factor causing the change was data maturation from recent flight test data which resulted in a lowering of the fuel flow factor margin from a ~5% to a 4% margin. Lower fuel burn means greater range. STO distance is tied to a takeoff weight for a fixed mission radius. Less fuel was needed so less weight and lower STO distance.

Notes

1/ The F-35 Program is currently in developmental testing, and will provide demonstrated performance with the Block 3F full capability aircraft.

Acronyms and Abbreviations

ASD - Average Sortie Duration
CTOL - Conventional Takeoff and Landing
CU FT - Cubic Feet
CV - Aircraft Carrier Suitable Variant
JDAM - Joint Direct Attack Munitions
KTS - Knots
NM - Nautical Miles
RCLW - Required Carrier Landing Weight
ST - Short Tons
STO - Short Takeoff
STOVL - Short Takeoff and Vertical Landing
Vpa - Max Approach Speed
WOD - Wind Over the Deck

F-35 Engine

Performance Characteristics				
SAR Baseline Development Estimate	**Current APB Development Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
See Note				
N/A	N/A	N/A	TBD	N/A

Requirements Reference

Operational Requirements Document (ORD) Change 3 dated August 19, 2008 as modified by Joint Requirements Oversight Council Memorandum 040-12 dated March 16, 2012

Change Explanations

None

Notes

1/ Performance characteristics for the F-35 Engine subprogram are captured as part of the system-level performance characteristics reflected in the F-35 Aircraft subprogram.

Track to Budget

F-35 Aircraft

General Notes

F-35 is DoD's largest cooperative development program. In addition to DoD's funding lines, eight International Partners are providing funding in the System Development and Demonstration (SDD) Phase under a Memorandum of Understanding (MOU): United Kingdom, Italy, The Netherlands, Turkey, Canada, Australia, Denmark, and Norway. All but Turkey and Australia were partners in the prior phase. Associated financial contributions are reflected in the Annual Funding section as Appropriation 9999, RDT&E Non-Treasury Funds. RDT&E cost excludes Follow-on Development Funding.

RDT&E

Appn		BA	PE	
Navy	1319	04	0603800N	
	Project		Name	
	2209		RDT&E, Navy CDP	(Sunk)
Navy	1319	05	0604800M	
	Project		Name	
	2262		RDT&E, Marine Corps	
Navy	1319	05	0604800N	
	Project		Name	
	2261		RDT&E, Navy EMD/JSF	
	3194		RDT&E, Navy EMD/Joint Reprogramming Center	(Sunk)
Air Force	3600	04	0603800F	
	Project		Name	
	2025		RDT&E, Air Force CDP	(Sunk)
Air Force	3600	05	0604800F	
	Project		Name	
	3831		RDT&E, Air Force EMD/Joint Strike Fighter Quantity of RDT&E Articles	
Defense-Wide	0400	03	0603800E	
	Project		Name	
			RDT&E, DARPA	(Sunk)

Procurement

Appn		BA	PE
Navy	1506	01	0204146N
	Line Item		Name
	0147		JSF (Navy)
Navy	1506	01	0204146M
	Line Item		Name

	0152		JSF (Marine Corps)	
Navy	1506	05	0204146M	
	Line Item		**Name**	
	0592		F-35 STOVL Mods	
Navy	1506	05	0204146N	
	Line Item		**Name**	
	0593		F-35 CV Mods	
Navy	1506	06	0204146M	
	Line Item		**Name**	
	0605		Initial Spares (Marine Corps)	(Shared)
Navy	1506	06	0204146N	
	Line Item		**Name**	
	0605		Initial Spares (Navy)	(Shared)
Air Force	3010	06	0207142F	
	Line Item		**Name**	
	000999		Initial Spares (Air Force)	(Shared)
Air Force	3010	01	0207142F	
	Line Item		**Name**	
	ATA000		JSF (Air Force)	
Air Force	3010	05	0207142F	
	Line Item		**Name**	
	F03500		Mods (Air Force)	

MILCON

Appn		BA	PE	
Navy	1205	01	0212576N	
	Project		**Name**	
			MILCON, USN	(Shared) (Sunk)
Navy	1205	01	0216496M	
	Project		**Name**	
			MILCON, USN	(Shared)
Navy	1205	01	0816376N	
	Project		**Name**	
			MILCON, USN	(Shared)
Air Force	3300	01	0207142F	
	Project		**Name**	
			MILCON, AF	(Shared)
Air Force	3300	01	0207597F	
	Project		**Name**	
			MILCON, AF	(Shared)

Notes: PE 0207597F is a new PE

F-35 Engine

General Notes

F-35 is DoD's largest cooperative development program. In addition to DoD's funding lines, eight International Partners are providing funding in the System Development and Demonstration (SDD) Phase under a Memorandum of Understanding (MOU): United Kingdom, Italy, The Netherlands, Turkey, Canada, Australia, Denmark, and Norway. All but Turkey and Australia were partners in the prior phase. Associated financial contributions are reflected in the Annual Funding section as Appropriation 9999, RDT&E Non-Treasury Funds. RDT&E cost excludes Follow-on Development Funding.

RDT&E

Appn		BA	PE		
Navy	1319	04	0603800N		
	Project		**Name**		
	2209		RDT&E, Navy CDP		(Sunk)
Navy	1319	05	0604800M		
	Project		**Name**		
	2262		RDT&E, Marine Corps		
Navy	1319	05	0604800N		
	Project		**Name**		
	2261		RDT&E, Navy EMD/JSF		
	3194		RDT&E, Navy EMD/Joint Reprogramming Center		(Sunk)
	9999		RDT&E, Navy EMD/Congressional Adds		(Sunk)
Air Force	3600	04	0603800F		
	Project		**Name**		
	2025		RDT&E, Air Force CDP		(Sunk)
Air Force	3600	05	0604800F		
	Project		**Name**		
	3831		RDT&E, Air Force EMD/Joint Strike Fighter Quantity of RDT&E Articles		
Defense-Wide	0400	03	0603800E		
	Project		**Name**		
			RDT&E, DARPA		(Sunk)

Procurement

Appn		BA	PE	
Navy	1506	01	0204146N	
	Line Item		**Name**	
	0147		JSF (Navy)	
Navy	1506	01	0204146M	
	Line Item		**Name**	
	0152		JSF (Marine Corps)	
Navy	1506	06	0204146M	
	Line Item		**Name**	
	0605		Initial Spares (Marine Corps)	(Shared)

Navy	1506	06	0204146N

Line Item	Name	
0605	Initial Spares (Navy)	(Shared)

Air Force	3010	06	0207142F

Line Item	Name	
000999	Initial Spares (Air Force)	(Shared)

Air Force	3010	01	0207142F

Line Item	Name
ATA000	JSF (Air Force)

Air Force	3010	05	0207142F

Line Item	Name
F03500	Mods (Air Force)

Cost and Funding

Cost Summary - Total Program

Total Acquisition Cost - Total Program							
Appropriation	BY 2012 $M			BY 2012 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	59677.3	59398.1	--	59248.1	55233.8	55182.9	54908.4
Procurement	266665.8	266665.8	--	257167.6	335680.7	335680.7	331599.2
Flyaway	--	--	--	225342.3	--	--	292414.3
Recurring	--	--	--	201056.1	--	--	262214.9
Non Recurring	--	--	--	24286.2	--	--	30199.4
Support	--	--	--	31825.3	--	--	39184.9
Other Support	--	--	--	16798.2	--	--	19899.4
Initial Spares	--	--	--	15027.1	--	--	19285.5
MILCON	4168.0	4168.0	--	3929.4	4797.3	4797.3	4627.1
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	330511.1	330231.9	N/A	320345.1	395711.8	395660.9	391134.7

Cost and Funding

Cost Summary - F-35 Aircraft

Total Acquisition Cost - F-35 Aircraft							
Appropriation	BY 2012 $M			BY 2012 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	47982.1	46457.5	51103.3	46112.1	44410.1	43360.7	42926.8
Procurement	224332.9	224332.9	246766.2	214712.4	282647.8	282647.8	276567.4
Flyaway	--	--	--	189124.1	--	--	245249.4
Recurring	--	--	--	167271.2	--	--	218018.6
Non Recurring	--	--	--	21852.9	--	--	27230.8
Support	--	--	--	25588.3	--	--	31318.0
Other Support	--	--	--	15022.8	--	--	17802.8
Initial Spares	--	--	--	10565.5	--	--	13515.2
MILCON	4168.0	4168.0	4584.8	3929.4	4797.3	4797.3	4627.1
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	276483.0	274958.4	N/A	264753.9	331855.2	330805.8	324121.3

Current APB Cost Estimate Reference

Cost Assessment and Program Evaluation (CAPE) Independent Cost Estimate (ICE) dated March 09, 2012

Confidence Level

Confidence Level of cost estimate for current APB: 50%

This estimate, like all previous Cost Analysis Improvement Group (CAIG) and Cost Assessment and Program Evaluation (CAPE) estimates, is built upon a product-oriented work breakdown structure; is based on historical actual cost information to the maximum extent possible; and, most importantly, is based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition program (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimates will prove too low or too high for execution of the program described.

Total Quantity - F-35 Aircraft			
Quantity	**SAR Baseline Development Estimate**	**Current APB Development**	**Current Estimate**
RDT&E	14	14	14
Procurement	2443	2443	2443
Total	2457	2457	2457

Cost Summary - F-35 Engine

Total Acquisition Cost - F-35 Engine							
Appropriation	BY 2012 $M			BY 2012 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	11695.2	12940.6	14234.7	13136.0	10823.7	11822.2	11981.6
Procurement	42332.9	42332.9	46566.2	42455.2	53032.9	53032.9	55031.8
Flyaway	--	--	--	36218.2	--	--	47164.9
Recurring	--	--	--	33784.9	--	--	44196.3
Non Recurring	--	--	--	2433.3	--	--	2968.6
Support	--	--	--	6237.0	--	--	7866.9
Other Support	--	--	--	1775.4	--	--	2096.6
Initial Spares	--	--	--	4461.6	--	--	5770.3
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	54028.1	55273.5	N/A	55591.2	63856.6	64855.1	67013.4

Current APB Cost Estimate Reference

Cost Assessment and Program Evaluation (CAPE) Independent Cost Estimate (ICE) dated March 09, 2012

Confidence Level

Confidence Level of cost estimate for current APB: 50%

This estimate, like all previous Cost Analysis Improvement Group (CAIG) and Cost Assessment and Program Evaluation (CAPE) estimates, is built upon a product-oriented work breakdown structure; is based on historical actual cost information to the maximum extent possible; and, most importantly, is based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition program (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimates will prove too low or too high for execution of the program described.

Total Quantity - F-35 Engine			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	14	14	14
Procurement	2443	2443	2443
Total	2457	2457	2457

Cost and Funding

Funding Summary - Total Program

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	50386.4	1522.6	1508.7	1187.6	274.7	13.9	14.5	0.0	54908.4
Procurement	39192.2	6942.1	9158.1	10010.2	11730.7	11877.7	11638.0	231050.2	331599.2
MILCON	1291.0	198.6	292.7	388.9	88.1	143.0	254.4	1970.4	4627.1
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	90869.6	8663.3	10959.5	11586.7	12093.5	12034.6	11906.9	233020.6	391134.7
PB 2015 Total	90885.9	8394.3	10537.6	11649.0	12589.7	12858.2	13079.0	238590.9	398584.6
Delta	-16.3	269.0	421.9	-62.3	-496.2	-823.6	-1172.1	-5570.3	-7449.9

Cost and Funding

Funding Summary - F-35 Aircraft

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	38898.4	1285.5	1308.7	1131.6	274.2	13.9	14.5	0.0	42926.8
Procurement	33298.0	6068.6	7907.2	8551.9	9943.1	9919.8	9624.1	191254.7	276567.4
MILCON	1291.0	198.6	292.7	388.9	88.1	143.0	254.4	1970.4	4627.1
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	73487.4	7552.7	9508.6	10072.4	10305.4	10076.7	9893.0	193225.1	324121.3
PB 2015 Total	73383.2	7310.8	9099.8	10086.5	10693.1	10736.3	10869.0	197785.4	329964.1
Delta	104.2	241.9	408.8	-14.1	-387.7	-659.6	-976.0	-4560.3	-5842.8

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	179	38	57	66	88	90	92	1833	2443
PB 2016 Total	14	179	38	57	66	88	90	92	1833	2457
PB 2015 Total	14	179	34	55	68	90	96	100	1821	2457
Delta	0	0	4	2	-2	-2	-6	-8	12	0

Funding Summary - F-35 Engine

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	11488.0	237.1	200.0	56.0	0.5	0.0	0.0	0.0	11981.6
Procurement	5894.2	873.5	1250.9	1458.3	1787.6	1957.9	2013.9	39795.5	55031.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	17382.2	1110.6	1450.9	1514.3	1788.1	1957.9	2013.9	39795.5	67013.4
PB 2015 Total	17502.7	1083.5	1437.8	1562.5	1896.6	2121.9	2210.0	40805.5	68620.5
Delta	-120.5	27.1	13.1	-48.2	-108.5	-164.0	-196.1	-1010.0	-1607.1

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	179	38	57	66	88	90	92	1833	2443
PB 2016 Total	14	179	38	57	66	88	90	92	1833	2457
PB 2015 Total	14	179	34	55	68	90	96	100	1821	2457
Delta	0	0	4	2	-2	-2	-6	-8	12	0

Cost and Funding

Annual Funding By Appropriation - F-35 Aircraft

Annual Funding - F-35 Aircraft
0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide

Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	23.2
1997	--	--	--	--	--	--	54.8
1998	--	--	--	--	--	--	16.9
Subtotal	--	--	--	--	--	--	94.9

Annual Funding - F-35 Aircraft 0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	30.1
1997	--	--	--	--	--	--	70.2
1998	--	--	--	--	--	--	21.5
Subtotal	--	--	--	--	--	--	121.8

Annual Funding - F-35 Aircraft 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	67.5
1996	--	--	--	--	--	--	65.4
1997	--	--	--	--	--	--	202.3
1998	--	--	--	--	--	--	357.2
1999	--	--	--	--	--	--	366.5
2000	--	--	--	--	--	--	200.3
2001	--	--	--	--	--	--	274.3
2002	--	--	--	--	--	--	302.6
2003	--	--	--	--	--	--	1210.1
2004	--	--	--	--	--	--	1584.1
2005	--	--	--	--	--	--	1465.8
2006	--	--	--	--	--	--	1678.6
2007	--	--	--	--	--	--	1632.4
2008	--	--	--	--	--	--	1359.0
2009	--	--	--	--	--	--	1197.5
2010	--	--	--	--	--	--	1567.4
2011	--	--	--	--	--	--	715.4
2012	--	--	--	--	--	--	1262.2
2013	--	--	--	--	--	--	958.2
2014	--	--	--	--	--	--	546.2
2015	--	--	--	--	--	--	451.5
2016	--	--	--	--	--	--	440.7
2017	--	--	--	--	--	--	308.8
2018	--	--	--	--	--	--	114.4
2019	--	--	--	--	--	--	5.3
2020	--	--	--	--	--	--	5.4
Subtotal	5	--	--	--	--	--	18339.1

Annual Funding - F-35 Aircraft 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	89.1
1996	--	--	--	--	--	--	84.9
1997	--	--	--	--	--	--	259.5
1998	--	--	--	--	--	--	454.5
1999	--	--	--	--	--	--	460.9
2000	--	--	--	--	--	--	248.3
2001	--	--	--	--	--	--	335.4
2002	--	--	--	--	--	--	366.3
2003	--	--	--	--	--	--	1443.6
2004	--	--	--	--	--	--	1838.4
2005	--	--	--	--	--	--	1657.5
2006	--	--	--	--	--	--	1840.8
2007	--	--	--	--	--	--	1747.3
2008	--	--	--	--	--	--	1428.6
2009	--	--	--	--	--	--	1242.9
2010	--	--	--	--	--	--	1602.8
2011	--	--	--	--	--	--	714.3
2012	--	--	--	--	--	--	1239.2
2013	--	--	--	--	--	--	926.6
2014	--	--	--	--	--	--	523.0
2015	--	--	--	--	--	--	425.6
2016	--	--	--	--	--	--	408.3
2017	--	--	--	--	--	--	280.8
2018	--	--	--	--	--	--	102.0
2019	--	--	--	--	--	--	4.6
2020	--	--	--	--	--	--	4.6
Subtotal	5	--	--	--	--	--	19729.8

Annual Funding - F-35 Aircraft 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	23.7
1995	--	--	--	--	--	--	78.7
1996	--	--	--	--	--	--	64.6
1997	--	--	--	--	--	--	195.6
1998	--	--	--	--	--	--	360.4
1999	--	--	--	--	--	--	378.9
2000	--	--	--	--	--	--	191.7
2001	--	--	--	--	--	--	274.3
2002	--	--	--	--	--	--	370.1
2003	--	--	--	--	--	--	1089.5
2004	--	--	--	--	--	--	1548.2
2005	--	--	--	--	--	--	1510.3
2006	--	--	--	--	--	--	1657.3
2007	--	--	--	--	--	--	1470.7
2008	--	--	--	--	--	--	1285.0
2009	--	--	--	--	--	--	1271.2
2010	--	--	--	--	--	--	1440.5
2011	--	--	--	--	--	--	989.9
2012	--	--	--	--	--	--	960.1
2013	--	--	--	--	--	--	1081.9
2014	--	--	--	--	--	--	692.3
2015	--	--	--	--	--	--	819.0
2016	--	--	--	--	--	--	851.0
2017	--	--	--	--	--	--	800.8
2018	--	--	--	--	--	--	132.3
2019	--	--	--	--	--	--	8.6
2020	--	--	--	--	--	--	9.1
Subtotal	9	--	--	--	--	--	19555.7

Annual Funding - F-35 Aircraft 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	31.9
1995	--	--	--	--	--	--	103.9
1996	--	--	--	--	--	--	83.9
1997	--	--	--	--	--	--	250.9
1998	--	--	--	--	--	--	458.6
1999	--	--	--	--	--	--	476.5
2000	--	--	--	--	--	--	237.6
2001	--	--	--	--	--	--	335.4
2002	--	--	--	--	--	--	448.0
2003	--	--	--	--	--	--	1299.7
2004	--	--	--	--	--	--	1796.8
2005	--	--	--	--	--	--	1707.8
2006	--	--	--	--	--	--	1817.4
2007	--	--	--	--	--	--	1574.3
2008	--	--	--	--	--	--	1350.8
2009	--	--	--	--	--	--	1319.4
2010	--	--	--	--	--	--	1473.0
2011	--	--	--	--	--	--	988.4
2012	--	--	--	--	--	--	942.6
2013	--	--	--	--	--	--	1046.2
2014	--	--	--	--	--	--	662.8
2015	--	--	--	--	--	--	772.0
2016	--	--	--	--	--	--	788.4
2017	--	--	--	--	--	--	728.2
2018	--	--	--	--	--	--	118.0
2019	--	--	--	--	--	--	7.5
2020	--	--	--	--	--	--	7.8
Subtotal	9	--	--	--	--	--	20827.8

Annual Funding - F-35 Aircraft 9999 | RDT&E | Non Treasury Funds							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	11.3
1997	--	--	--	--	--	--	67.1
1998	--	--	--	--	--	--	72.1
1999	--	--	--	--	--	--	49.0
2000	--	--	--	--	--	--	25.2
2001	--	--	--	--	--	--	9.5
2002	--	--	--	--	--	--	255.8
2003	--	--	--	--	--	--	298.7
2004	--	--	--	--	--	--	484.2
2005	--	--	--	--	--	--	734.3
2006	--	--	--	--	--	--	801.3
2007	--	--	--	--	--	--	635.3
2008	--	--	--	--	--	--	574.0
2009	--	--	--	--	--	--	236.0
2010	--	--	--	--	--	--	133.2
2011	--	--	--	--	--	--	171.3
2012	--	--	--	--	--	--	126.9
2013	--	--	--	--	--	--	148.5
2014	--	--	--	--	--	--	21.9
2015	--	--	--	--	--	--	15.0
2016	--	--	--	--	--	--	17.0
2017	--	--	--	--	--	--	22.0
2018	--	--	--	--	--	--	27.5
Subtotal	--	--	--	--	--	--	4937.1

Annual Funding - F-35 Aircraft 9999 | RDT&E | Non Treasury Funds							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	14.7
1997	--	--	--	--	--	--	86.1
1998	--	--	--	--	--	--	91.7
1999	--	--	--	--	--	--	61.6
2000	--	--	--	--	--	--	31.2
2001	--	--	--	--	--	--	11.6
2002	--	--	--	--	--	--	309.6
2003	--	--	--	--	--	--	356.3
2004	--	--	--	--	--	--	561.9
2005	--	--	--	--	--	--	830.3
2006	--	--	--	--	--	--	878.7
2007	--	--	--	--	--	--	680.0
2008	--	--	--	--	--	--	603.4
2009	--	--	--	--	--	--	244.9
2010	--	--	--	--	--	--	136.2
2011	--	--	--	--	--	--	171.0
2012	--	--	--	--	--	--	124.6
2013	--	--	--	--	--	--	143.6
2014	--	--	--	--	--	--	21.0
2015	--	--	--	--	--	--	14.1
2016	--	--	--	--	--	--	15.7
2017	--	--	--	--	--	--	20.0
2018	--	--	--	--	--	--	24.5
Subtotal	--	--	--	--	--	--	5432.7

Annual Funding - F-35 Aircraft 3010 | Procurement | Aircraft Procurement, Air Force							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	107.2	--	--	107.2	--	107.2
2007	2	428.5	--	80.5	509.0	91.1	600.1
2008	6	983.1	--	171.9	1155.0	131.5	1286.5
2009	7	1009.2	--	276.8	1286.0	175.8	1461.8
2010	10	1471.2	--	355.7	1826.9	277.7	2104.6
2011	22	2751.2	--	551.9	3303.1	679.6	3982.7
2012	18	2041.5	--	369.3	2410.8	793.0	3203.8
2013	19	2074.6	--	98.3	2172.9	532.6	2705.5
2014	19	2034.6	--	616.7	2651.3	430.0	3081.3
2015	28	2715.8	--	635.7	3351.5	537.2	3888.7
2016	44	4076.0	--	571.1	4647.1	626.3	5273.4
2017	48	4053.7	--	919.5	4973.2	643.4	5616.6
2018	60	4725.6	--	884.1	5609.7	670.7	6280.4
2019	60	4631.6	--	900.9	5532.5	629.0	6161.5
2020	60	4421.4	--	509.3	4930.7	740.2	5670.9
2021	60	4504.4	--	488.1	4992.5	670.8	5663.3
2022	80	5791.1	--	594.1	6385.2	971.7	7356.9
2023	80	5882.6	--	598.1	6480.7	774.1	7254.8
2024	80	5945.2	--	605.9	6551.1	794.7	7345.8
2025	80	6178.9	--	623.8	6802.7	853.5	7656.2
2026	80	6294.2	--	634.2	6928.4	845.9	7774.3
2027	80	6387.5	--	644.0	7031.5	886.8	7918.3
2028	80	6478.6	--	651.0	7129.6	689.6	7819.2
2029	80	6553.0	--	638.8	7191.8	756.1	7947.9
2030	80	6703.9	--	652.9	7356.8	864.9	8221.7
2031	80	6943.3	--	674.0	7617.3	913.9	8531.2
2032	80	7124.6	--	683.3	7807.9	693.7	8501.6
2033	80	7357.6	--	700.2	8057.8	579.8	8637.6
2034	80	7598.3	--	717.9	8316.2	383.0	8699.2
2035	80	7884.6	--	741.3	8625.9	393.4	9019.3
2036	80	8093.1	--	738.3	8831.4	344.3	9175.7
2037	80	7658.6	--	693.8	8352.4	356.3	8708.7
2038	20	2428.7	--	232.3	2661.0	215.4	2876.4
Subtotal	1763	153333.4	--	18253.7	171587.1	18946.0	190533.1

Annual Funding - F-35 Aircraft 3010 | Procurement | Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2012 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	115.9	--	--	115.9	--	115.9
2007	2	452.5	--	85.1	537.6	96.2	633.8
2008	6	1022.9	--	178.9	1201.8	136.8	1338.6
2009	7	1035.6	--	284.1	1319.7	180.4	1500.1
2010	10	1478.6	--	357.5	1836.1	279.1	2115.2
2011	22	2709.4	--	543.6	3253.0	669.3	3922.3
2012	18	1980.7	--	358.3	2339.0	769.4	3108.4
2013	19	1989.9	--	94.3	2084.2	510.8	2595.0
2014	19	1921.4	--	582.3	2503.7	406.1	2909.8
2015	28	2521.8	--	590.3	3112.1	498.8	3610.9
2016	44	3716.5	--	520.8	4237.3	571.0	4808.3
2017	48	3626.0	--	822.5	4448.5	575.5	5024.0
2018	60	4144.7	--	775.4	4920.1	588.3	5508.4
2019	60	3982.6	--	774.7	4757.3	540.9	5298.2
2020	60	3727.3	--	429.4	4156.7	624.0	4780.7
2021	60	3722.8	--	403.5	4126.3	554.4	4680.7
2022	80	4692.4	--	481.4	5173.8	787.4	5961.2
2023	80	4673.1	--	475.2	5148.3	614.9	5763.2
2024	80	4630.2	--	472.0	5102.2	618.9	5721.1
2025	80	4717.9	--	476.3	5194.2	651.7	5845.9
2026	80	4711.7	--	474.8	5186.5	633.2	5819.7
2027	80	4687.8	--	472.6	5160.4	650.8	5811.2
2028	80	4661.4	--	468.4	5129.8	496.2	5626.0
2029	80	4622.5	--	450.6	5073.1	533.4	5606.5
2030	80	4636.2	--	451.6	5087.8	598.1	5685.9
2031	80	4707.6	--	457.0	5164.6	619.6	5784.2
2032	80	4735.8	--	454.2	5190.0	461.1	5651.1
2033	80	4794.8	--	456.4	5251.2	377.8	5629.0
2034	80	4854.6	--	458.7	5313.3	244.7	5558.0
2035	80	4938.7	--	464.4	5403.1	246.4	5649.5
2036	80	4969.9	--	453.3	5423.2	211.5	5634.7
2037	80	4610.9	--	417.7	5028.6	214.5	5243.1
2038	20	1433.5	--	137.1	1570.6	127.2	1697.8
Subtotal	1763	115227.6	--	14322.4	129550.0	15088.4	144638.4

Cost Quantity Information - F-35 Aircraft 3010 | Procurement | Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M
2006	--	--
2007	2	452.5
2008	6	1022.9
2009	7	1035.6
2010	10	1478.6
2011	22	2709.4
2012	18	1980.7
2013	19	1989.9
2014	19	1921.4
2015	28	2521.8
2016	44	3716.5
2017	48	3626.0
2018	60	4144.7
2019	60	3982.6
2020	60	3727.3
2021	60	3722.8
2022	80	4692.4
2023	80	4673.1
2024	80	4630.2
2025	80	4717.9
2026	80	4711.7
2027	80	4687.8
2028	80	4661.4
2029	80	4622.5
2030	80	4636.2
2031	80	4707.6
2032	80	4735.8
2033	80	4794.8
2034	80	4854.6
2035	80	4938.7
2036	80	5008.5
2037	80	4649.5
2038	20	1472.2
Subtotal	1763	115227.6

Annual Funding - F-35 Aircraft 1506 | Procurement | Aircraft Procurement, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	96.9	--	--	96.9	--	96.9
2008	6	923.2	--	38.6	961.8	10.7	972.5
2009	7	1062.0	--	181.9	1243.9	206.2	1450.1
2010	20	2681.2	--	304.4	2985.6	560.9	3546.5
2011	10	1494.8	--	251.6	1746.4	431.9	2178.3
2012	13	1477.7	--	333.1	1810.8	746.7	2557.5
2013	10	1107.3	--	51.1	1158.4	557.3	1715.7
2014	10	1205.5	--	465.8	1671.3	575.7	2247.0
2015	10	1115.0	--	650.8	1765.8	414.1	2179.9
2016	13	1402.0	--	601.9	2003.9	629.9	2633.8
2017	18	1786.4	--	599.3	2385.7	549.6	2935.3
2018	28	2512.7	--	593.5	3106.2	556.5	3662.7
2019	30	2717.2	--	434.3	3151.5	606.8	3758.3
2020	32	2795.0	--	405.9	3200.9	752.3	3953.2
2021	40	3341.3	--	342.6	3683.9	686.9	4370.8
2022	40	3356.6	--	330.4	3687.0	804.0	4491.0
2023	40	3357.7	--	331.9	3689.6	609.3	4298.9
2024	40	3407.9	--	324.5	3732.4	652.7	4385.1
2025	40	3479.8	--	334.5	3814.3	588.6	4402.9
2026	40	3553.0	--	337.2	3890.2	521.0	4411.2
2027	40	3581.6	--	358.0	3939.6	445.7	4385.3
2028	40	3630.1	--	366.5	3996.6	351.0	4347.6
2029	40	3691.3	--	341.7	4033.0	318.6	4351.6
2030	40	3535.8	--	346.3	3882.1	277.9	4160.0
2031	21	2112.3	--	195.9	2308.2	201.7	2509.9
2032	20	2077.0	--	165.7	2242.7	121.1	2363.8
2033	20	2029.9	--	174.1	2204.0	119.8	2323.8
2034	12	1154.0	--	115.6	1269.6	75.1	1344.7
Subtotal	680	64685.2	--	8977.1	73662.3	12372.0	86034.3

Annual Funding - F-35 Aircraft 1506 | Procurement | Aircraft Procurement, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	102.3	--	--	102.3	--	102.3
2008	6	960.6	--	40.2	1000.8	11.1	1011.9
2009	7	1089.8	--	186.7	1276.5	211.6	1488.1
2010	20	2694.6	--	305.9	3000.5	563.8	3564.3
2011	10	1472.1	--	247.8	1719.9	425.3	2145.2
2012	13	1433.7	--	323.2	1756.9	724.5	2481.4
2013	10	1062.1	--	49.0	1111.1	534.6	1645.7
2014	10	1138.4	--	439.9	1578.3	543.7	2122.0
2015	10	1035.4	--	604.3	1639.7	384.5	2024.2
2016	13	1278.3	--	548.9	1827.2	574.3	2401.5
2017	18	1597.9	--	536.1	2134.0	491.6	2625.6
2018	28	2203.8	--	520.6	2724.4	488.1	3212.5
2019	30	2336.5	--	373.4	2709.9	521.8	3231.7
2020	32	2356.2	--	342.2	2698.4	634.2	3332.6
2021	40	2761.6	--	283.2	3044.8	567.6	3612.4
2022	40	2719.8	--	267.7	2987.5	651.5	3639.0
2023	40	2667.3	--	263.7	2931.0	484.0	3415.0
2024	40	2654.1	--	252.7	2906.8	508.4	3415.2
2025	40	2657.0	--	255.4	2912.4	449.4	3361.8
2026	40	2659.7	--	252.3	2912.0	390.1	3302.1
2027	40	2628.5	--	262.8	2891.3	327.1	3218.4
2028	40	2611.9	--	263.7	2875.6	252.5	3128.1
2029	40	2603.8	--	241.0	2844.8	224.8	3069.6
2030	40	2445.3	--	239.5	2684.8	192.1	2876.9
2031	21	1432.2	--	132.7	1564.9	136.8	1701.7
2032	20	1380.6	--	110.2	1490.8	80.5	1571.3
2033	20	1322.8	--	113.6	1436.4	78.0	1514.4
2034	12	737.3	--	73.8	811.1	48.0	859.1
Subtotal	680	52043.6	--	7530.5	59574.1	10499.9	70074.0

Cost Quantity Information - F-35 Aircraft 1506 | Procurement | Aircraft Procurement, Navy		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M**
2007	--	--
2008	6	960.6
2009	7	1089.8
2010	20	2694.6
2011	10	1472.1
2012	13	1433.7
2013	10	1062.1
2014	10	1138.4
2015	10	1035.4
2016	13	1278.3
2017	18	1597.9
2018	28	2203.8
2019	30	2336.5
2020	32	2356.2
2021	40	2761.6
2022	40	2719.8
2023	40	2667.3
2024	40	2654.1
2025	40	2657.0
2026	40	2659.7
2027	40	2628.5
2028	40	2611.9
2029	40	2603.8
2030	40	2445.3
2031	21	1432.2
2032	20	1414.7
2033	20	1356.9
2034	12	771.4
Subtotal	680	52043.6

Annual Funding - F-35 Aircraft 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	TY $M Total Program
2004	24.4
2005	--
2006	0.1
2007	--
2008	0.2
2009	0.7
2010	34.1
2011	377.9
2012	172.2
2013	94.9
2014	--
2015	131.9
2016	94.4
2017	230.9
2018	64.7
2019	122.0
2020	119.8
2021	116.2
2022	75.9
2023	101.3
2024	145.0
2025	--
2026	61.9
2027	75.0
2028	65.1
2029	2.0
Subtotal	2110.6

Annual Funding - F-35 Aircraft 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	BY 2012 $M
	Total Program
2004	27.8
2005	--
2006	0.1
2007	--
2008	0.2
2009	0.7
2010	34.1
2011	368.9
2012	165.5
2013	89.8
2014	--
2015	120.7
2016	84.7
2017	203.3
2018	55.8
2019	103.2
2020	99.4
2021	94.5
2022	60.5
2023	79.2
2024	111.1
2025	--
2026	45.6
2027	54.2
2028	46.1
2029	1.4
Subtotal	1846.8

All DoN MILCON funding is reflected in the Aircraft subprogram.

Annual Funding - F-35 Aircraft 3300 | MILCON | Military Construction, Air Force	
Fiscal Year	TY $M
	Total Program
2004	1.7
2005	10.0
2006	--
2007	--
2008	100.3
2009	116.0
2010	125.1
2011	139.6
2012	24.3
2013	13.5
2014	56.0
2015	66.7
2016	198.3
2017	158.0
2018	23.4
2019	21.0
2020	134.6
2021	66.6
2022	73.1
2023	167.0
2024	142.3
2025	122.1
2026	118.4
2027	129.9
2028	101.8
2029	102.7
2030	94.6
2031	71.7
2032	71.2
2033	37.5
2034	24.8
2035	4.3
Subtotal	2516.5

Annual Funding - F-35 Aircraft 3300 | MILCON | Military Construction, Air Force	
Fiscal Year	BY 2012 $M Total Program
2004	1.9
2005	11.1
2006	--
2007	--
2008	104.1
2009	118.8
2010	125.0
2011	136.3
2012	23.4
2013	12.8
2014	52.1
2015	61.0
2016	178.0
2017	139.1
2018	20.2
2019	17.8
2020	111.7
2021	54.2
2022	58.3
2023	130.5
2024	109.1
2025	91.7
2026	87.2
2027	93.8
2028	72.1
2029	71.3
2030	64.4
2031	47.8
2032	46.6
2033	24.0
2034	15.6
2035	2.7
Subtotal	2082.6

All Air Force F-35 MILCON funding is reflected in the Aircraft subprogram.

Annual Funding By Appropriation - F-35 Engine

Annual Funding - F-35 Engine 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	16.4
1996	--	--	--	--	--	--	15.9
1997	--	--	--	--	--	--	49.3
1998	--	--	--	--	--	--	87.1
1999	--	--	--	--	--	--	89.4
2000	--	--	--	--	--	--	48.8
2001	--	--	--	--	--	--	66.9
2002	--	--	--	--	--	--	409.8
2003	--	--	--	--	--	--	400.5
2004	--	--	--	--	--	--	435.8
2005	--	--	--	--	--	--	614.3
2006	--	--	--	--	--	--	586.3
2007	--	--	--	--	--	--	441.6
2008	--	--	--	--	--	--	596.0
2009	--	--	--	--	--	--	544.6
2010	--	--	--	--	--	--	466.1
2011	--	--	--	--	--	--	216.2
2012	--	--	--	--	--	--	101.8
2013	--	--	--	--	--	--	157.5
2014	--	--	--	--	--	--	54.2
2015	--	--	--	--	--	--	83.8
2016	--	--	--	--	--	--	77.3
2017	--	--	--	--	--	--	14.6
2018	--	--	--	--	--	--	0.2
Subtotal	5	--	--	--	--	--	5574.4

Annual Funding - F-35 Engine 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2012 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	21.7
1996	--	--	--	--	--	--	20.6
1997	--	--	--	--	--	--	63.2
1998	--	--	--	--	--	--	110.8
1999	--	--	--	--	--	--	112.4
2000	--	--	--	--	--	--	60.5
2001	--	--	--	--	--	--	81.8
2002	--	--	--	--	--	--	496.0
2003	--	--	--	--	--	--	477.8
2004	--	--	--	--	--	--	505.8
2005	--	--	--	--	--	--	694.7
2006	--	--	--	--	--	--	643.0
2007	--	--	--	--	--	--	472.7
2008	--	--	--	--	--	--	626.5
2009	--	--	--	--	--	--	565.2
2010	--	--	--	--	--	--	476.6
2011	--	--	--	--	--	--	215.9
2012	--	--	--	--	--	--	99.9
2013	--	--	--	--	--	--	152.3
2014	--	--	--	--	--	--	51.9
2015	--	--	--	--	--	--	79.0
2016	--	--	--	--	--	--	71.6
2017	--	--	--	--	--	--	13.3
2018	--	--	--	--	--	--	0.2
Subtotal	5	--	--	--	--	--	6113.4

Annual Funding - F-35 Engine 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	5.8
1995	--	--	--	--	--	--	19.3
1996	--	--	--	--	--	--	15.8
1997	--	--	--	--	--	--	47.7
1998	--	--	--	--	--	--	87.8
1999	--	--	--	--	--	--	92.4
2000	--	--	--	--	--	--	46.7
2001	--	--	--	--	--	--	66.9
2002	--	--	--	--	--	--	350.4
2003	--	--	--	--	--	--	550.8
2004	--	--	--	--	--	--	533.2
2005	--	--	--	--	--	--	573.5
2006	--	--	--	--	--	--	528.1
2007	--	--	--	--	--	--	639.1
2008	--	--	--	--	--	--	563.9
2009	--	--	--	--	--	--	433.1
2010	--	--	--	--	--	--	445.7
2011	--	--	--	--	--	--	250.9
2012	--	--	--	--	--	--	187.6
2013	--	--	--	--	--	--	199.3
2014	--	--	--	--	--	--	111.4
2015	--	--	--	--	--	--	153.3
2016	--	--	--	--	--	--	122.7
2017	--	--	--	--	--	--	41.4
2018	--	--	--	--	--	--	0.3
Subtotal	9	--	--	--	--	--	6067.1

Annual Funding - F-35 Engine 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	7.8
1995	--	--	--	--	--	--	25.5
1996	--	--	--	--	--	--	20.5
1997	--	--	--	--	--	--	61.2
1998	--	--	--	--	--	--	111.7
1999	--	--	--	--	--	--	116.2
2000	--	--	--	--	--	--	57.9
2001	--	--	--	--	--	--	81.8
2002	--	--	--	--	--	--	424.1
2003	--	--	--	--	--	--	657.1
2004	--	--	--	--	--	--	618.8
2005	--	--	--	--	--	--	648.5
2006	--	--	--	--	--	--	579.1
2007	--	--	--	--	--	--	684.1
2008	--	--	--	--	--	--	592.8
2009	--	--	--	--	--	--	449.5
2010	--	--	--	--	--	--	455.8
2011	--	--	--	--	--	--	250.5
2012	--	--	--	--	--	--	184.2
2013	--	--	--	--	--	--	192.7
2014	--	--	--	--	--	--	106.7
2015	--	--	--	--	--	--	144.5
2016	--	--	--	--	--	--	113.7
2017	--	--	--	--	--	--	37.6
2018	--	--	--	--	--	--	0.3
Subtotal	9	--	--	--	--	--	6622.6

Annual Funding - F-35 Engine 0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	5.7
1995	--	--	--	--	--	--	13.4
1996	--	--	--	--	--	--	4.0
Subtotal	--	--	--	--	--	--	23.1

Annual Funding - F-35 Engine 0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	7.7
1995	--	--	--	--	--	--	17.7
1996	--	--	--	--	--	--	5.2
Subtotal	--	--	--	--	--	--	30.6

Annual Funding - F-35 Engine 9999 | RDT&E | Non Treasury Funds							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	2.7
1997	--	--	--	--	--	--	3.9
1998	--	--	--	--	--	--	5.1
1999	--	--	--	--	--	--	5.7
2000	--	--	--	--	--	--	1.8
2001	--	--	--	--	--	--	0.5
2002	--	--	--	--	--	--	43.3
2003	--	--	--	--	--	--	124.3
2004	--	--	--	--	--	--	54.1
2005	--	--	--	--	--	--	0.3
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	75.0
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	0.3
Subtotal	--	--	--	--	--	--	317.0

Annual Funding - F-35 Engine 9999 | RDT&E | Non Treasury Funds							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	3.5
1997	--	--	--	--	--	--	5.0
1998	--	--	--	--	--	--	6.5
1999	--	--	--	--	--	--	7.2
2000	--	--	--	--	--	--	2.2
2001	--	--	--	--	--	--	0.6
2002	--	--	--	--	--	--	52.4
2003	--	--	--	--	--	--	148.3
2004	--	--	--	--	--	--	62.8
2005	--	--	--	--	--	--	0.3
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	80.3
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	0.3
Subtotal	--	--	--	--	--	--	369.4

Annual Funding - F-35 Engine 3010 | Procurement | Aircraft Procurement, Air Force							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	9.8	--	--	9.8	--	9.8
2007	2	47.5	--	6.9	54.4	27.7	82.1
2008	6	123.6	--	35.0	158.6	30.9	189.5
2009	7	127.0	--	63.9	190.9	33.3	224.2
2010	10	176.7	--	72.6	249.3	59.1	308.4
2011	22	353.2	--	91.6	444.8	136.6	581.4
2012	18	275.3	--	66.0	341.3	123.0	464.3
2013	19	262.5	--	11.9	274.4	89.6	364.0
2014	19	282.1	--	31.2	313.3	47.5	360.8
2015	28	386.7	--	15.5	402.2	116.2	518.4
2016	44	606.1	--	23.2	629.3	126.7	756.0
2017	48	635.6	--	58.3	693.9	130.4	824.3
2018	60	766.1	--	53.7	819.8	152.6	972.4
2019	60	773.3	--	57.7	831.0	157.7	988.7
2020	60	787.5	--	35.5	823.0	171.1	994.1
2021	60	814.3	--	35.3	849.6	180.0	1029.6
2022	80	1059.6	--	42.5	1102.1	249.5	1351.6
2023	80	1081.6	--	43.2	1124.8	229.7	1354.5
2024	80	1105.5	--	43.2	1148.7	233.2	1381.9
2025	80	1140.1	--	44.2	1184.3	245.8	1430.1
2026	80	1169.2	--	45.4	1214.6	248.0	1462.6
2027	80	1195.9	--	45.0	1240.9	263.2	1504.1
2028	80	1228.7	--	45.4	1274.1	201.9	1476.0
2029	80	1263.6	--	47.7	1311.3	234.9	1546.2
2030	80	1297.6	--	48.5	1346.1	265.9	1612.0
2031	80	1345.0	--	50.5	1395.5	278.6	1674.1
2032	80	1381.9	--	49.4	1431.3	194.1	1625.4
2033	80	1428.8	--	50.5	1479.3	184.8	1664.1
2034	80	1478.1	--	50.9	1529.0	166.5	1695.5
2035	80	1532.9	--	52.9	1585.8	173.1	1758.9
2036	80	1577.3	--	52.2	1629.5	150.1	1779.6
2037	80	1473.7	--	49.3	1523.0	158.3	1681.3
2038	20	401.8	--	18.7	420.5	96.5	517.0
Subtotal	1763	27588.6	--	1437.8	29026.4	5156.5	34182.9

Annual Funding - F-35 Engine 3010 | Procurement | Aircraft Procurement, Air Force							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	10.6	--	--	10.6	--	10.6
2007	2	50.2	--	7.3	57.5	29.2	86.7
2008	6	128.6	--	36.4	165.0	32.2	197.2
2009	7	130.3	--	65.6	195.9	34.2	230.1
2010	10	177.6	--	72.9	250.5	59.4	309.9
2011	22	347.8	--	90.2	438.0	134.6	572.6
2012	18	267.1	--	64.0	331.1	119.4	450.5
2013	19	251.8	--	11.4	263.2	85.9	349.1
2014	19	266.4	--	29.4	295.8	44.9	340.7
2015	28	359.1	--	14.4	373.5	107.9	481.4
2016	44	552.6	--	21.2	573.8	115.5	689.3
2017	48	568.5	--	52.1	620.6	116.7	737.3
2018	60	671.9	--	47.1	719.0	133.9	852.9
2019	60	664.9	--	49.6	714.5	135.7	850.2
2020	60	663.9	--	29.9	693.8	144.2	838.0
2021	60	673.0	--	29.2	702.2	148.8	851.0
2022	80	858.6	--	34.4	893.0	202.2	1095.2
2023	80	859.2	--	34.3	893.5	182.5	1076.0
2024	80	861.0	--	33.6	894.6	181.7	1076.3
2025	80	870.5	--	33.7	904.2	187.8	1092.0
2026	80	875.2	--	34.0	909.2	185.7	1094.9
2027	80	877.7	--	33.0	910.7	193.2	1103.9
2028	80	884.1	--	32.7	916.8	145.2	1062.0
2029	80	891.3	--	33.6	924.9	165.8	1090.7
2030	80	897.4	--	33.5	930.9	183.9	1114.8
2031	80	911.9	--	34.2	946.1	189.0	1135.1
2032	80	918.6	--	32.8	951.4	129.0	1080.4
2033	80	931.1	--	32.9	964.0	120.5	1084.5
2034	80	944.4	--	32.5	976.9	106.4	1083.3
2035	80	960.2	--	33.1	993.3	108.4	1101.7
2036	80	968.6	--	32.1	1000.7	92.1	1092.8
2037	80	887.2	--	29.7	916.9	95.3	1012.2
2038	20	237.2	--	11.0	248.2	57.0	305.2
Subtotal	1763	20418.5	--	1161.8	21580.3	3968.2	25548.5

Cost Quantity Information - F-35 Engine 3010 | Procurement | Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M
2006	--	--
2007	2	50.2
2008	6	128.6
2009	7	130.3
2010	10	177.6
2011	22	347.8
2012	18	267.1
2013	19	251.8
2014	19	266.4
2015	28	359.1
2016	44	552.6
2017	48	568.5
2018	60	671.9
2019	60	664.9
2020	60	663.9
2021	60	673.0
2022	80	858.6
2023	80	859.2
2024	80	861.0
2025	80	870.5
2026	80	875.2
2027	80	877.7
2028	80	884.1
2029	80	891.3
2030	80	897.4
2031	80	911.9
2032	80	918.6
2033	80	931.1
2034	80	944.4
2035	80	960.2
2036	80	972.1
2037	80	890.7
2038	20	240.8
Subtotal	1763	20418.5

Annual Funding - F-35 Engine 1506 | Procurement | Aircraft Procurement, Navy							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	27.4	--	--	27.4	--	27.4
2008	6	246.1	--	1.3	247.4	1.2	248.6
2009	7	298.0	--	54.3	352.3	65.6	417.9
2010	20	599.0	--	118.5	717.5	127.6	845.1
2011	10	400.5	--	112.5	513.0	122.3	635.3
2012	13	191.4	--	57.7	249.1	61.9	311.0
2013	10	236.9	--	26.6	263.5	169.8	433.3
2014	10	227.1	--	21.6	248.7	142.4	391.1
2015	10	259.5	--	27.6	287.1	68.0	355.1
2016	13	362.7	--	22.3	385.0	109.9	494.9
2017	18	513.0	--	28.1	541.1	92.9	634.0
2018	28	705.6	--	29.3	734.9	80.3	815.2
2019	30	763.7	--	105.9	869.6	99.6	969.2
2020	32	801.2	--	93.6	894.8	125.0	1019.8
2021	40	894.6	--	68.4	963.0	149.1	1112.1
2022	40	910.4	--	68.2	978.6	163.3	1141.9
2023	40	917.8	--	66.8	984.6	141.2	1125.8
2024	40	942.4	--	78.9	1021.3	147.0	1168.3
2025	40	966.8	--	75.6	1042.4	141.1	1183.5
2026	40	989.4	--	79.1	1068.5	134.9	1203.4
2027	40	1010.0	--	61.4	1071.4	108.8	1180.2
2028	40	1034.7	--	57.8	1092.5	97.6	1190.1
2029	40	1060.0	--	58.2	1118.2	94.9	1213.1
2030	40	1000.9	--	51.5	1052.4	91.3	1143.7
2031	21	372.2	--	43.2	415.4	55.3	470.7
2032	20	345.4	--	44.5	389.9	45.0	434.9
2033	20	338.5	--	46.8	385.3	45.9	431.2
2034	12	192.5	--	31.1	223.6	28.5	252.1
Subtotal	680	16607.7	--	1530.8	18138.5	2710.4	20848.9

Annual Funding - F-35 Engine 1506 | Procurement | Aircraft Procurement, Navy							
		BY 2012 $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	28.9	--	--	28.9	--	28.9
2008	6	256.1	--	1.4	257.5	1.2	258.7
2009	7	305.8	--	55.8	361.6	67.3	428.9
2010	20	602.0	--	119.1	721.1	128.2	849.3
2011	10	394.4	--	110.8	505.2	120.5	625.7
2012	13	185.7	--	55.9	241.6	60.1	301.7
2013	10	227.2	--	25.5	252.7	162.9	415.6
2014	10	214.5	--	20.4	234.9	134.4	369.3
2015	10	241.0	--	25.6	266.6	63.1	329.7
2016	13	330.7	--	20.3	351.0	100.3	451.3
2017	18	458.9	--	25.1	484.0	83.1	567.1
2018	28	618.9	--	25.7	644.6	70.4	715.0
2019	30	656.7	--	91.1	747.8	85.6	833.4
2020	32	675.4	--	78.9	754.3	105.4	859.7
2021	40	739.4	--	56.5	795.9	123.2	919.1
2022	40	737.7	--	55.3	793.0	132.3	925.3
2023	40	729.1	--	53.1	782.2	112.1	894.3
2024	40	734.0	--	61.4	795.4	114.5	909.9
2025	40	738.2	--	57.7	795.9	107.8	903.7
2026	40	740.6	--	59.2	799.8	101.0	900.8
2027	40	741.2	--	45.1	786.3	79.8	866.1
2028	40	744.5	--	41.6	786.1	70.2	856.3
2029	40	747.7	--	41.1	788.8	66.9	855.7
2030	40	692.2	--	35.6	727.8	63.1	790.9
2031	21	252.4	--	29.3	281.7	37.4	319.1
2032	20	229.6	--	29.6	259.2	29.9	289.1
2033	20	220.6	--	30.5	251.1	29.9	281.0
2034	12	123.0	--	19.9	142.9	18.2	161.1
Subtotal	680	13366.4	--	1271.5	14637.9	2268.8	16906.7

Cost Quantity Information - F-35 Engine 1506 | Procurement | Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M
2007	--	--
2008	6	256.1
2009	7	305.8
2010	20	602.0
2011	10	394.4
2012	13	185.7
2013	10	227.2
2014	10	214.5
2015	10	241.0
2016	13	330.7
2017	18	458.9
2018	28	618.9
2019	30	656.7
2020	32	675.4
2021	40	739.4
2022	40	737.7
2023	40	729.1
2024	40	734.0
2025	40	738.2
2026	40	740.6
2027	40	741.2
2028	40	744.5
2029	40	747.7
2030	40	692.2
2031	21	252.4
2032	20	239.2
2033	20	230.2
2034	12	132.7
Subtotal	680	13366.4

Low Rate Initial Production

F-35 Aircraft

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/26/2001	3/28/2012
Approved Quantity	465	340
Reference	Milestone B ADM	Milestone B Re-approval ADM
Start Year	2006	2006
End Year	2015	2018

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the necessity to prevent a break in production and to ramp up to FRP.

The USD(AT&L) approved the LRIP quantity of 465 (in six LRIP lots) in the original MS B ADM dated October 26, 2001. The LRIP quantity has been revised to 340 (in eleven LRIP lots) based on the FY 2016 PB.

F-35 Engine

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/26/2001	3/28/2012
Approved Quantity	465	340
Reference	Milestone B ADM	Milestone B Re-approval ADM
Start Year	2006	2006
End Year	2015	2018

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Foreign Military Sales

F-35 Aircraft

Country	Date of Sale	Quantity	Total Cost $M	Description
Korea	9/14/2014	40	6277.0	All 40 aircraft will be the F-35A aircraft.
Japan	5/23/2014	10	2263.4	Japan signed an amendment to add four F-35A's delivered from a Japan F-35 Final Assembly and Checkout facility in 2018. There is an option to purchase 32 additional F-35A aircraft.
Israel	9/30/2010	19	2623.3	All 19 aircraft will be the F-35A aircraft.

Notes

F-35 Engine

Notes

FMS information for the F-35 Engine subprogram are reflected in the F-35 Aircraft subprogram.

Nuclear Costs

F-35 Aircraft

None

F-35 Engine

None

Unit Cost

F-35 Aircraft

Unit Cost Report

Item	BY 2012 $M Current UCR Baseline (Jun 2014 APB)	BY 2012 $M Current Estimate (Dec 2014 SAR)	% Change
Program Acquisition Unit Cost			
Cost	274958.4	264753.9	
Quantity	2457	2457	
Item	111.908	107.755	-3.71
Average Procurement Unit Cost			
Cost	224332.9	214712.4	
Quantity	2443	2443	
Unit Cost	91.827	87.889	-4.29

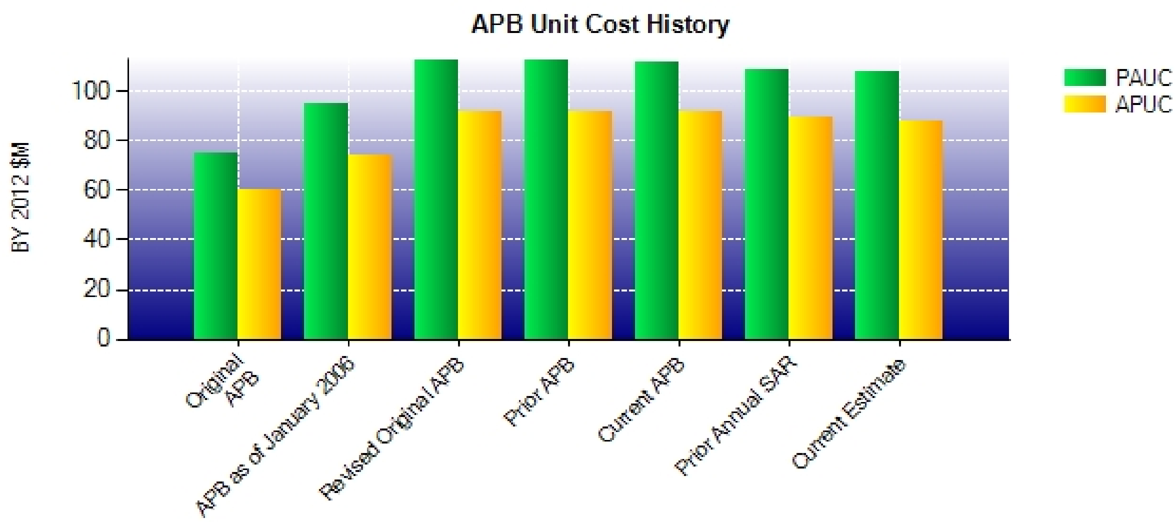
Item	BY 2012 $M Revised Original UCR Baseline (Mar 2012 APB)	BY 2012 $M Current Estimate (Dec 2014 SAR)	% Change
Program Acquisition Unit Cost			
Cost	276482.2	264753.9	
Quantity	2458	2457	
Unit Cost	112.483	107.755	-4.20
Average Procurement Unit Cost			
Cost	224333.7	214712.4	
Quantity	2443	2443	
Unit Cost	91.827	87.889	-4.29

The DoD average F-35 Aircraft Unit Recurring Flyaway (URF) Cost consists of the Hardware (Airframe, Vehicle Systems, Mission Systems, and Engineering Change Order) costs over the life of the program. The URF assumes the planned quantity benefits of 101 FMS aircraft and 612 International Partner aircraft.

F-35A (Conventional Take Off and Landing) URF - $65.2 M (BY 2012)
F-35B (Short Takeoff and Vertical Landing) URF - $76.8M (BY 2012)
F-35C (Carrier Variant) URF - $77.7 M (BY 2012)

F-35 Aircraft

Unit Cost History



Item	Date	BY 2012 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Oct 2001	74.567	60.632	81.298	68.934
APB as of January 2006	Mar 2004	94.837	73.845	100.407	81.826
Revised Original APB	Mar 2012	112.529	91.827	135.065	115.697
Prior APB	Mar 2012	112.529	91.827	135.065	115.697
Current APB	Jun 2014	111.908	91.827	134.638	115.697
Prior Annual SAR	Dec 2013	108.694	89.009	134.296	115.747
Current Estimate	Dec 2014	107.755	87.889	131.918	113.208

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
135.065	1.197	0.000	1.394	0.000	-3.685	0.000	-2.053	-3.147	131.918

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
115.697	1.181	0.000	1.402	0.000	-3.008	0.000	-2.065	-2.490	113.208

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	Nov 1996	N/A	Nov 1996
Milestone B	Mar 2001	Mar 2012	N/A	Mar 2012
Milestone C	TBD	Apr 2019	N/A	Apr 2019
IOC	TBD	TBD	N/A	Jul 2015
Total Cost (TY $M)	24800.0	331855.2	N/A	324121.3
Total Quantity	N/A	2457	N/A	2457
PAUC	N/A	135.065	N/A	131.918

The Service IOC reflected in the above table is the U.S. Marine Corps Objective date. In addition, the U.S. Air Force IOC objective date is August 2016, and the U.S. Navy IOC objective date is August 2018.

F-35 Engine

Unit Cost Report

Item	BY 2012 $M Current UCR Baseline (Jun 2014 APB)	BY 2012 $M Current Estimate (Dec 2014 SAR)	% Change
Program Acquisition Unit Cost			
Cost	55273.5	55591.2	
Quantity	2457	2457	
Item	22.496	22.626	+0.58
Average Procurement Unit Cost			
Cost	42332.9	42455.2	
Quantity	2443	2443	
Unit Cost	17.328	17.378	+0.29

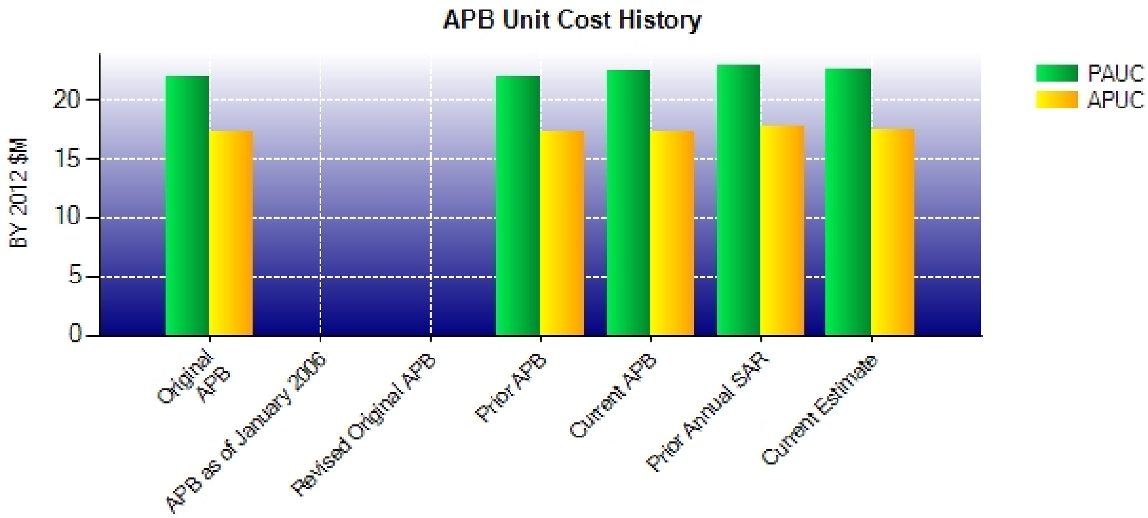
Item	BY 2012 $M Original UCR Baseline (Mar 2012 APB)	BY 2012 $M Current Estimate (Dec 2014 SAR)	% Change
Program Acquisition Unit Cost			
Cost	53916.4	55591.2	
Quantity	2458	2457	
Unit Cost	21.935	22.626	+3.15
Average Procurement Unit Cost			
Cost	42332.9	42455.2	
Quantity	2443	2443	
Unit Cost	17.328	17.378	+0.29

The DoD average F-35 Engine Unit Recurring Flyaway (URF) Cost consists of the Hardware (Propulsion and Engineering Change Order) costs over the life of the program. The URF assumes the planned quantity benefits of 101 FMS engines and 612 International Partner engines.

F-35A (Conventional Take Off and Landing) URF - $11.6 M (BY 2012)
F-35B (Short Takeoff and Vertical Landing) URF - $28.3 M (BY 2012)
F-35C (Carrier Variant) URF - $11.4 M (BY 2012)

F-35 Engine

Unit Cost History



Item	Date	BY 2012 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Mar 2012	21.989	17.328	25.990	21.708
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Mar 2012	21.989	17.328	25.990	21.708
Current APB	Jun 2014	22.496	17.328	26.396	21.708
Prior Annual SAR	Dec 2013	22.968	17.670	27.929	23.125
Current Estimate	Dec 2014	22.626	17.378	27.274	22.526

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
25.990	0.208	0.000	0.263	0.000	1.152	0.000	-0.339	1.284	27.274

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
21.708	0.200	0.000	0.264	0.000	0.694	0.000	-0.340	0.818	22.526

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	N/A	N/A
Milestone C	N/A	N/A	N/A	N/A
IOC	N/A	N/A	N/A	N/A
Total Cost (TY $M)	N/A	63856.6	N/A	67013.4
Total Quantity	N/A	2457	N/A	2457
PAUC	N/A	25.990	N/A	27.274

Cost Variance

F-35 Aircraft

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	44410.1	282647.8	4797.3	331855.2
Previous Changes				
Economic	+90.0	+6303.8	+99.9	+6493.7
Quantity	--	--	--	--
Schedule	--	+2525.7	--	+2525.7
Engineering	--	--	--	--
Estimating	-1727.5	-6218.6	-476.2	-8422.3
Other	--	--	--	--
Support	--	-2488.2	--	-2488.2
Subtotal	-1637.5	+122.7	-376.3	-1891.1
Current Changes				
Economic	-65.4	-3417.6	-70.4	-3553.4
Quantity	--	--	--	--
Schedule	--	+899.8	--	+899.8
Engineering	--	--	--	--
Estimating	+219.6	-1129.8	+276.5	-633.7
Other	--	--	--	--
Support	--	-2555.5	--	-2555.5
Subtotal	+154.2	-6203.1	+206.1	-5842.8
Total Changes	-1483.3	-6080.4	-170.2	-7733.9
Current Estimate	42926.8	276567.4	4627.1	324121.3

Summary BY 2012 $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	47982.1	224332.9	4168.0	276483.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-2073.4	-4426.6	-466.1	-6966.1
Other	--	--	--	--
Support	--	-2456.3	--	-2456.3
Subtotal	-2073.4	-6882.9	-466.1	-9422.4
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+203.4	-691.0	+227.5	-260.1
Other	--	--	--	--
Support	--	-2046.6	--	-2046.6
Subtotal	+203.4	-2737.6	+227.5	-2306.7
Total Changes	-1870.0	-9620.5	-238.6	-11729.1
Current Estimate	46112.1	214712.4	3929.4	264753.9

Previous Estimate: December 2013

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-65.4
Adjustment for current and prior escalation. (Estimating)	+26.9	+28.1
Increase due to additional scope to Initial Operational Test and Evaluation International Program. (Estimating)	+45.0	+50.9
Realignment of costs between Aircraft subprogram and Engine subprogram. (Air Force) (Estimating)	+18.0	+18.5
Realignment of costs between Aircraft subprogram and Engine subprogram. (Navy) (Estimating)	+119.4	+124.9
Decrease due to realignment of program funding, Congressional reductions, and actual funding investment. (Air Force) (Estimating)	-4.2	-3.6
Increase due to realignment of program funding and actual funding investment. (Navy) (Estimating)	-1.7	+0.8
RDT&E Subtotal	+203.4	+154.2

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-3417.6
Increase for revised DoD procurement profile (i.e. lower near-term ramp rate) and extended Department of the Navy program from FY 2033 to FY 2034. (Air Force) (Schedule)	0.0	+548.1
Increase for revised DoD procurement profile (i.e. lower near-term ramp rate) and extended Department of the Navy program from FY 2033 to FY 2034. (Navy) (Schedule)	0.0	+351.7
Adjustment for current and prior escalation. (Estimating)	+120.1	+127.5
Decrease due to revised International procurement quantity profile. (Air Force) (Estimating)	-123.7	-167.8
Decrease due to revised International procurement quantity profile. (Navy) (Estimating)	-83.7	-96.2
Revised estimate of subcontractor cost due to the incorporation of the latest actuals from early LRIP lots. (Air Force) (Estimating)	-501.5	-715.2
Revised estimate of subcontractor cost due to the incorporation of the latest actuals from early LRIP lots. (Navy) (Estimating)	+197.8	+238.2
Revised estimate of Airframe cost due to the incorporation of the latest actuals from early LRIP lots. (Air Force) (Estimating)	+2701.6	+3526.0
Revised estimate of Airframe cost due to the incorporation of the latest actuals from early LRIP lots. (Navy) (Estimating)	+333.3	+395.2
Revised estimate of Airframe cost due to the incorporation of the latest Prime and subcontractor Labor/Exchange Rates. (Air Force) (Estimating)	-2531.9	-3455.5
Revised estimate of Airframe cost due to the incorporation of the latest Prime and subcontractor Labor/Exchange Rates. (Navy) (Estimating)	-803.0	-982.0
Adjustment for current and prior escalation. (Support)	+29.6	+31.1
Decrease in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Air Force) (Support)	-713.0	-959.5
Decrease in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Navy) (Support)	-414.9	-527.0
Decrease in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Air Force) (Support)	-61.1	-32.1

Decrease in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Navy) (Support)	-887.2	-1068.0
Procurement Subtotal	-2737.6	-6203.1

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-70.4
Adjustment for current and prior escalation. (Estimating)	+3.1	+3.2
Increase due to revised estimate of MILCON requirements. (Air Force) (Estimating)	+150.0	+165.3
Increase due to revised estimate of MILCON requirements. (Navy) (Estimating)	+74.4	+108.0
MILCON Subtotal	+227.5	+206.1

Cost Variance

F-35 Engine

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	10823.7	53032.9	--	63856.6
Previous Changes				
Economic	+30.7	+1179.1	--	+1209.8
Quantity	--	--	--	--
Schedule	--	+467.4	--	+467.4
Engineering	--	--	--	--
Estimating	+1270.6	+2013.5	--	+3284.1
Other	--	--	--	--
Support	--	-197.4	--	-197.4
Subtotal	+1301.3	+3462.6	--	+4763.9
Current Changes				
Economic	-9.5	-689.8	--	-699.3
Quantity	--	--	--	--
Schedule	--	+178.2	--	+178.2
Engineering	--	--	--	--
Estimating	-133.9	-317.8	--	-451.7
Other	--	--	--	--
Support	--	-634.3	--	-634.3
Subtotal	-143.4	-1463.7	--	-1607.1
Total Changes	+1157.9	+1998.9	--	+3156.8
Current Estimate	11981.6	55031.8	--	67013.4

Summary BY 2012 $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	11695.2	42332.9	--	54028.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+1569.0	+1071.4	--	+2640.4
Other	--	--	--	--
Support	--	-235.6	--	-235.6
Subtotal	+1569.0	+835.8	--	+2404.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-128.2	-182.8	--	-311.0
Other	--	--	--	--
Support	--	-530.7	--	-530.7
Subtotal	-128.2	-713.5	--	-841.7
Total Changes	+1440.8	+122.3	--	+1563.1
Current Estimate	13136.0	42455.2	--	55591.2

Previous Estimate: December 2013

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-9.5
Adjustment for current and prior escalation. (Estimating)	+5.8	+6.1
Realignment of cost between Aircraft subprogram and Engine subprogram. (Air Force) (Estimating)	-18.0	-18.5
Increase due to realignment of program funding and actual funding investment. (Air Force) (Estimating)	+1.1	+1.1
Realignment of cost between Aircraft subprogram and Engine subprogram. (Navy) (Estimating)	-119.2	-124.9
Increase due to realignment of program funding and actual funding investment. (Navy) (Estimating)	+2.1	+2.3
RDT&E Subtotal	-128.2	-143.4

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-689.8
Increase for revised DoD procurement profile (i.e. lower near-term ramp rate) and extended Department of the Navy program from FY 2033 to FY 2034. (Air Force) (Schedule)	0.0	+108.9
Increase for revised DoD procurement profile (i.e. lower near-term ramp rate) and extended Department of the Navy program from FY 2033 to FY 2034. (Navy) (Schedule)	0.0	+69.3
Adjustment for current and prior escalation. (Estimating)	+16.5	+17.3
Decrease due to revised International procurement quantity profile. (Air Force) (Estimating)	-36.2	-59.2
Decrease due to revised International procurement quantity profile. (Navy) (Estimating)	-8.5	-13.6
Revised estimate due to the incorporation of the latest actuals from early LRIP lots. (Air Force) (Estimating)	-130.5	-220.1
Revised estimate due to the incorporation of the latest actuals from early LRIP lots. (Navy) (Estimating)	-24.1	-42.2
Adjustment for current and prior escalation. (Support)	+5.9	+6.4
Decrease in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Air Force) (Support)	-80.6	-109.1
Decrease in Other Support due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Navy) (Support)	-48.7	-61.3
Decrease in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Air Force) (Support)	-35.1	-22.4
Decrease in Initial Spares due to maturation of technical baseline, definition of customer requirements, and further definition of Service beddown plans. (Navy) (Support)	-372.2	-447.9
Procurement Subtotal	-713.5	-1463.7

Contracts

Contract Identification	
Appropriation:	Procurement
Contract Name:	F-35 LRIP 5
Contractor:	Lockheed Martin
Contractor Location:	1 Lockheed Boulevard Ft Worth, TX 76108
Contract Number:	N00019-10-C-0002
Contract Type:	Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	July 06, 2010
Definitization Date:	December 14, 2012

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
3949.6	N/A	32	4955.6	N/A	32	4986.0	5041.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to delta driven by definitization of Production Non-recurring, Annualized Sustainment and Spares scope.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	-179.0	-91.0
Previous Cumulative Variances	-130.5	-185.9
Net Change	-48.5	+94.9

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to Final Assembly and Flight Line labor due to material shortages, Scrap Rework Repair volume, and System Check-Out Procedures failures driving labor inefficiencies and Out of Station work, as well as due to incorporation of non-standard tasks primarily associated with Mission System troubleshooting and reliability issues. In addition, general material costs degraded due to supplier settlements, inventory and higher than expected scrap. Finally, cost degradation in Tech Assist was due to unfavorable settlement between BAE, Lockheed Martin and Magellan for production of F-35A Horizontal Tails and parts.

The favorable net change in the schedule variance is due to completion of behind-schedule assembly labor. All aircraft have delivered as of December 2014.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement

Contract Name: F-35 LRIP 6

Contractor: Lockheed Martin

Contractor Location: 1 Lockheed Boulevard
Ft. Worth, TX 76108

Contract Number: N00019-11-C-0083

Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)

Award Date: December 28, 2012

Definitization Date: September 27, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
4392.1	N/A	36	7209.8	N/A	36	7139.2	7209.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of Production Non Recurring, Annualized Sustainment, Non-Annualized Sustainment, Depot, and Spares scope.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	-183.0	-193.0
Previous Cumulative Variances	--	--
Net Change	-183.0	-193.0

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to Mate and Final Assembly labor due to part shortages, supplier non-conformance, re-work associated with the Rotary Geared Actuator Hinge Tool, seam validation non-conformance, and internal part failures. Engineering changes for Carrier Variant Retract actuator also created delays, rework, and out of sequence activity. Flight Line performance was driven by incorporation of unplanned tasks, non-conformance issues, Government Furnished Equipment/Propulsion, Vehicle & Missions Systems troubleshooting and reliability, and availability/ maturity of 3iR software. Also, Landside Final Finishes failed to reach required learning curves and realize affordability improvements assumed at time of baseline.

The unfavorable cumulative schedule variance is due to the production build which remains behind schedule with aircraft DD250s averaging approximately 3.5 months late to contract.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

Contract Identification

Appropriation: Procurement
Contract Name: F135 LRIP 6
Contractor: Pratt & Whitney
Contractor Location: 400 Aircraft Road
Middletown, CT 06457
Contract Number: N00019-12-C-0090
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: January 06, 2012
Definitization Date: February 15, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1122.0	N/A	38	1131.9	N/A	38	1090.9	1131.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional support equipment added to the contract and extending CLIN 12 period of performance for service specific Sustainment work.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	-8.6	-31.0
Previous Cumulative Variances	--	--
Net Change	-8.6	-31.0

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the contract transitioning from an Advance Acquisition Contract (AAC) to a full funding production contract. During the AAC period, the contractor was incurring actual costs to preserve the engine delivery schedule but did not have any associated performance claimed because the performance measurement baseline was not in place. The unfavorable cost variance improved once the baseline was established and performance was claimed.

The unfavorable cumulative schedule variance is due to work scope in the Sustainment area that is late to baseline plan for tooling, initial spare and support equipment.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

This contract includes both engines and Sustainment work scope. All engines have been delivered and the remaining work is for tooling, support equipment, spare parts and Sustainment support tasks.

Current Contract Ceiling Price is estimated based on the FPIF and CPIF CLINs.

Total Quantity includes aircraft engines and spare engines = 36 installs and 2 whole spares.

The earned value completion date and Contractor Performance Report reporting will be determined as the contract nears completion.

Pratt & Whitney's Earned Value Management System (EVMS) was decertified on September 30, 2013 due to sixteen significant deficiencies that affect four of the 32 EVMS Guidelines. In accordance with Defense Federal Acquisition Regulation Supplement, 2% of each request for payment is being withheld until all significant deficiencies have been corrected.

Contract Identification

Appropriation: Procurement
Contract Name: F-35 LRIP 7
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Ft. Worth, TX 76108
Contract Number: N00019-12-C-0004
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)
Award Date: September 27, 2013
Definitization Date: September 27, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
4447.1	N/A	35	5481.2	N/A	35	5668.6	5481.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of Tech Assist, Non-Annualized Sustainment and Depot scope.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	-10.0	-46.0
Previous Cumulative Variances	--	--
Net Change	-10.0	-46.0

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the Marietta Wing bracket mislocation containment effort and disruption due to late units received from Alenia as well as Fort Worth Wing disruption costs created by line of balance issues due to late parts deliveries and supply chain issues.

The unfavorable cumulative schedule variance is due to assembly labor due to ongoing part shortages.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

Contract Identification

Appropriation: Procurement

Contract Name: F135 LRIP 7

Contractor: Pratt & Whitney

Contractor Location: 400 Aircraft Road
Middletown, CT 06457

Contract Number: N00019-12-C-0060

Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Incentive Fee (CPIF)

Award Date: September 27, 2012

Definitization Date: October 15, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
679.7	N/A	36	679.7	N/A	36	679.7	679.7

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	-372.8	-1.5
Previous Cumulative Variances	--	--
Net Change	-372.8	-1.5

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the contract transitioning from an Advance Acquisition Contract (AAC) to a full funding production contract and the hardware actual costs are higher than what was negotiated for the engines.

The Performance Measurement Baseline is currently being developed and the unfavorable cumulative cost variance is due to the contractor incurring actual costs during the AAC period of performance to preserve engine delivery that did not have any associated performance claimed.

The unfavorable cumulative schedule variance is due to the favorable net change in the schedule variance engine hardware delivering ahead of baseline plan in the Turbine Exhaust Case, Fan and Nozzle components.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

The full funding contract modification was awarded on October 14, 2014. The unfavorable variance will improve once the baseline is in place and performance is claimed.

Pratt & Whitney's Earned Value Management System (EVMS) was decertified on September 30, 2013 due to sixteen significant deficiencies that affect four of the 32 EVMS Guidelines. In accordance with Defense Federal Acquisition Regulation Supplement, 2% of each request for payment is being withheld until all significant deficiencies have been corrected.

Contract Identification

Appropriation: RDT&E
Contract Name: Israel System Development & Demonstration (ISDD)
Contractor: Lockheed Martin
Contractor Location: 1 Lockheed Boulevard
Ft. Worth, TX 76108
Contract Number: N00019-12-C-0070
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: February 01, 2012
Definitization Date: February 01, 2012

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
211.5	N/A	N/A	432.2	N/A	N/A	354.3	369.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to budget incorporated for the Israel System Development and Demonstration Phase 1 Increment 2 Contract Authorized in October 2014.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	+25.0	0.0
Previous Cumulative Variances	--	--
Net Change	+25.0	+0.0

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to overhead underruns and Program Office staffing efficiencies.

Notes

As a whole, the CLIN consist of multiple contract types including Fixed Price Incentive Fee as well as Cost Plus Incentive Fee and Cost Plus Fixed-Fee. For this reason, the overall contract type is mixed and there is not a true contract ceiling.

Deliveries and Expenditures

F-35 Aircraft

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	14	14	14	100.00%
Production	112	106	2443	4.34%
Total Program Quantity Delivered	126	120	2457	4.88%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	324121.3	Years Appropriated	22
Expended to Date	60580.8	Percent Years Appropriated	48.89%
Percent Expended	18.69%	Appropriated to Date	81040.1
Total Funding Years	45	Percent Appropriated	25.00%

The above data is current as of January 30, 2015.

Totals reflect U.S. aircraft only-no International Partner aircraft

F-35 Engine

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	14	14	14	100.00%
Production	112	106	2443	4.34%
Total Program Quantity Delivered	126	120	2457	4.88%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	67013.4	Years Appropriated	22
Expended to Date	15602.6	Percent Years Appropriated	48.89%
Percent Expended	23.28%	Appropriated to Date	18492.8
Total Funding Years	45	Percent Appropriated	27.60%

The above data is current as of January 27, 2015.

Engines planned and actual to date only include production installs.

Operating and Support Cost

F-35 Aircraft

Cost Estimate Details

Date of Estimate:	December 31, 2013
Source of Estimate:	CAPE ICE
Quantity to Sustain:	2443
Unit of Measure:	Flying Hour
Service Life per Unit:	30.00 Years
Fiscal Years in Service:	FY 2011 - FY 2064

Quantity to Sustain 2443 does not include 14 development aircraft.

Sustainment Strategy

The F-35 Product Support Manager (PSM) has developed and is executing a Sustainment Strategy that is consistent with warfighter requirements, technical specifications, extant contracts, government policies, and best practices. The F-35 Sustainment Strategy expressly states that the F-35 Program will:

- Design, develop, deliver and sustain a single, integrated, and global system of sustainment products, processes, and business practices. These actions will enable the F-35 Air System to achieve a high degree of effectiveness at an affordable cost.

- Tailor the global system to meet warfighter-defined and PSM-supported readiness and cost objectives. This action will ensure that the global system is responsive and flexible as operational needs vary over time.

- Maintain life-cycle focus, including the reduction of costs. This action will provide critical affordability benefits and further supports a high degree of effectiveness as Air System maturity grows.

- Create a mutually-beneficial enterprise that – with relevant metrics and incentives – operates, manages, and supports the global system. This action further improves responsiveness and enhances affordability.

- Leverage the global resource base – government and commercial – to take advantage of stakeholder capabilities, human capital, best practices, and similar critical contributions. This action increases robustness and scalability as the F-35 fleet grows and matures.

Antecedent Information

The F-35 family of aircraft variants will replace the following current aircraft: F-16C/D, A-10, F/A-18C/D, and AV-8B. The F-35 O&S estimate is based on legacy fleet history only when F-35 specific data is not available.

Comparing the costs of the 5th Generation F-35 to legacy aircraft is challenging. The average annual O&S cost table compares an adjusted F-16C/D Cost per Flying Hour (CPFH) to a forecast of the CPFH for the F-35A variant. The F-35A CPFH figure is based on the Conventional Takeoff and Landing (CTOL) variant only. The F-35A CTOL variant will make up the majority of the DoD F-35 aircraft procurement, accounting for 1,763 of 2,443 total aircraft currently planned for U.S. forces.

The F-16C/D CPFH figures were developed in a joint effort between CAPE and the Air Force Cost Analysis Agency. The

figures have been normalized for comparison to the F-35A CPFH forecast. The starting point for the F-16C/D CPFH is an average of actual cost incurred for this fleet during FY 2008 through FY 2010. In order to enable the direct comparison of the CPFH figures, the actual F-16C/D CPFH is adjusted to reflect the cost of fuel, the number of flight hours forecast for the F-35A, and FY 2013 inflation indices. The F-16C/D figures include costs that F-16 shares with other Air Force platforms: Systems Engineering/Program Management, maintenance training costs, certain software development efforts, and information systems. Costs for mission planning are included in the F-35A CPFH figure, but equivalent costs for the F-16C/D are not available, and no adjustment was made for this element of cost for the F-16. The F-35 PEO believes this inability to estimate and add mission planning costs for the F-16 results in a greater difference in the cost per flying hour between the F-35 and F-16 than actually exists. Additionally, the F-16 is a mature weapons system with many reliability and maintenance costs “leaned out” over the years. The F-35 on the other hand has significant opportunity to reduce maintenance and support costs in the future. Finally, the F-16C/D figures assume full funding of requirements consistent with the F-35A CPFH figures.

Annual O&S Costs BY2012 $K		
Cost Element	**F-35 Aircraft Average Annual Cost Per Flying Hour**	**F-16C/D (Antecedent) Cost Per Flying Hour ($)**
Unit-Level Manpower	8.792	10.042
Unit Operations	7.275	5.632
Maintenance	10.019	5.501
Sustaining Support	3.132	2.075
Continuing System Improvements	3.336	2.291
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	32.554	25.541

Although the unitized costs for the entire F-35 program decreased slightly when compared to figures from the 2012 Milestone (MS) B estimate, the F-35A CTOL unitized cost figure shown in the Table above increased slightly relative to the comparable MS B figure. There are two considerations that result in a slight increase for the F-35A unitized cost shown above: 1) discrete modelling for Air Force squadrons by geographic location and active or reserve components; 2) updated Depot-Level Repairable (DLR) reliabilities and costs as discussed in detail in the following section on Total O&S Costs.

Given the significant increase in military capabilities provided, it is reasonable to expect F-35A to cost more to operate and sustain than 4th generation legacy aircraft. However, the program office is committed to, and has enacted multiple programs to, drive the O&S costs of the F-35 down closer to legacy platforms.

Item	Total O&S Cost $M			
	F-35 Aircraft			**F-16C/D (Antecedent)**
	Current Development APB Objective/Threshold		**Current Estimate**	
Base Year	617000.0	678700.0	597773.6	N/A
Then Year	1113272.6	N/A	1016516.0	N/A

The Total O&S Cost figures above reflect the CAPE ICE of O&S costs, updated in 2013 in accordance with tasking from the annual DAB review of the F-35 program. The O&S cost estimate includes all three U.S. aircraft variants, is based on a forecast 30-year service-life, and is based on planned usage rates provided by the relevant military service. The

planned F-35 usage rates, in terms of aircraft flight hours per year, are as follows: F-35A CTOL @ 250 hrs./yr.; F-35B Short Takeoff and Vertical Landing @ 302 hrs./yr.; and F-35C Carrier Variant @ 316 hrs./yr. The total life-cycle cost estimate is not a simple extrapolation of the F-35A flying hour cost shown in the unitized O&S cost table above. Total O&S costs are updated using FY 2013 inflation indices, and include updated forecasts of labor escalation rates for military, civilian, and contractor personnel. A comparable total cost figure for the antecedent system (i.e., F-16C/D) is not available. The 2013 CAPE estimate of F-35 total life-cycle O&S costs incorporates updated information regarding several key cost elements relative to the CAPE O&S cost estimate prepared for the MS B review in early 2012. This includes updated fuel burn rates for the F-35B and F-35C variants, use of historical escalation rates for government personnel, discrete modeling for Air Force squadrons by geographic location and active or reserve components, and updated DLR costs. The updated information results in increased cost forecasts for certain cost elements, and decreased cost forecasts for other elements. The 2013 CAPE total O&S estimate is approximately three percent lower (in BY 2012 dollars) and nine percent lower (in TY dollars) than the total O&S cost estimate prepared for the 2012 MS B re-approval DAB review.

For the first time, in 2013, the CAPE O&S cost estimate incorporates actual information on component reliabilities obtained from the ongoing F-35 flight operations, including flight test and field operations. This program information is provided from the DoD test community, through the Director, Operational Test and Evaluation, and includes actual reliability information on many F-35 components based on data collected during approximately 8,500 hours of flight operations. The data include the F-35A and F-35B variants, and flight operations through October 2013. The reliability information has been compared to expected reliabilities for this stage of the program, for the A and B variants, based on reliability growth curves. The 2013 CAPE O&S estimate includes an increase of $15B (BY 2012$) in DLR costs, relative to the 2012 MS B estimate, because component reliability information obtained from actual flight operations data is not consistent with expectations. The program office believes this reliability data (based on an older configuration of aircraft and representing only 3% of the hours required to reach Reliability and Maintainability (R&M) maturity) is not fully representative of the current (currently at 9% of the hours and on a wider fleet of LRIP aircraft) or projected reliability of the F-35 fleet. CAPE will continue to work with the DoD operational test community to improve the processes and methods used to incorporate actual data and information on component reliabilities and removal rates, obtained from ongoing flight operations, into the CAPE life-cycle O&S cost estimate for the F-35 program. This information will be used, together with reliability improvement forecasts, to update the life cycle O&S cost estimates as the program proceeds to and beyond IOC.

Affordability remains the F-35 program office number one priority. As such, the F-35 program team is focused on reducing sustainment costs across the program. The December 2012 SAR identified a few disciplined initiatives designed to reduce sustainment cost. Among those were a sustainment Business Case Analysis (BCA) to identify cost reduction areas, an Industry day to foster competition in selected areas of the program, R&M improvements to optimize maintenance approach and a Targeted Affordability Program, which resulted in the standup of the Cost War Room (CWR) in September 2013 to identify and implement cost reduction projects for sustainment costs across the program. The F-35 Joint Program Office (JPO) has made significant progress in these areas since the last SAR and continues to focus on life-cycle affordability as one of its key focus areas.

The program office has implemented a fully funded R&M improvement program which includes diagnostics and analysis of select initiatives as candidate improvements. These candidates are identified from readiness cell inputs that have the highest impact or potential for redesign to maximize air system availability and control O&S costs. The R&M Improvement Program successfully directed the implementation of the Top 20 engineering retrofit candidates in 50 percent of the LRIP 2, 3 and 4 aircraft by the end of 2014. Additionally, the R&M Improvement program identified six R&M Improvement projects that were approved for funding implementation. The program is on schedule to award contracts on the six projects by the second quarter of FY 2015.

The CWR, led by the F-35 program office with support from Lockheed Martin and Pratt and Whitney, has achieved an additional $5B (BY 2012$) DoD life-cycle cost avoidance on top of the $15B (BY 2012$) identified in the 2013 SAR, with an additional $20B (BY 2012$) in the implementation and execution phase that is expected to be incorporated in 2015. The program continues to refine the support concept based on inputs from the BCA, as well as the Future Support Construct effort, in order to achieve the best value solution for its stakeholders. Phase II of the BCA was completed in April 2014 and Phase III will be initiated in November 2015 to expand on the Phase II analysis of support approach options

for key areas of sustainment.

The 2013 SAR identified four key areas where CAPE and POE differed: reliability, depot overhaul, government/contractor manpower, and F-35A fuel consumption. The 2014 POE of $535.7B BY 2012$ ($859.0B TY$) has been updated to reflect the latest technical baseline for the program and incorporates revised stakeholder requirements. Of particular relevance to the JPO-CAPE differences from the previous SAR, the fuel consumption rates for all variants have been updated based on Service recommendations informed by actual performance to-date. Additionally, the 2015 Office of Management and Budget inflation indices have had a significant downward influence on the POE TY$ value, creating a much more substantial reduction than when compared in a BY 2012$ basis. The 2014 POE incorporates updated inputs for reliability, depot overhaul, and government/contractor manpower but those remain areas of difference between the two estimates. The program office believes that the reliability data used in the CAPE estimate (based on an older configuration of aircraft and representing only 3% of the hours required to reach R&M maturity) is not fully representative of the current (currently at 9% of the hours and on a wider fleet of LRIP aircraft) or projected reliability of the F-35 fleet.

The F-35 PEO believes that the inherent differences between the F-35 and the F-16 estimates, such as mission planning costs being included in F-35 but not F-16 and the fact that the F-16 is a mature weapons system with many reliability and maintenance costs “leaned out” over the years, result in an overstating of the differences in cost per flying hour between the two. Regardless of the difference, the F-35 program office is committed to, and has enacted multiple programs to drive the O&S costs of the F-35 down.

Equation to Translate Annual Cost to Total Cost

The F-35 steady state cost per flying hour reflected in the annual O&S cost section does not easily translate to the Total O&S value for the program because the total O&S costs reflect costs for all three variants of the F-35 for the U.S. Air Force, U.S. Marince Corps, and U.S. Navy, whereas the CPFH reflects the U.S. Air Force F-35A only.

O&S Cost Variance

Category	BY 2012 $M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	597773.6	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	597773.6	

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2012 $M):

Program maturity is not at a point where disposal costs can be estimated within an acceptable margin of error.

F-35 Engine

Cost Estimate Details

Date of Estimate:

Source of Estimate:

Quantity to Sustain:

Unit of Measure:

Service Life per Unit:

Fiscal Years in Service:

O&S costs for the engine subprogram are included in the overall program costs that are shown in the F-35 Aircraft subprogram.

Sustainment Strategy

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Antecedent Information

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Annual O&S Costs BY2012 $K		
Cost Element	**F-35 Engine**	**No Antecedent (Antecedent)**
Unit-Level Manpower	0.000	0.000
Unit Operations	0.000	0.000
Maintenance	0.000	0.000
Sustaining Support	0.000	0.000
Continuing System Improvements	0.000	0.000
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	--	--

Item	Total O&S Cost $M			
	F-35 Engine			No Antecedent (Antecedent)
	Current Development APB Objective/Threshold		Current Estimate	
Base Year	N/A	N/A	N/A	N/A
Then Year	N/A	N/A	N/A	N/A

O&S Cost Variance		
Category	**BY 2012 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2014 SAR	0.0	

Programmatic/Planning Factors	0.0
Cost Estimating Methodology	0.0
Cost Data Update	0.0
Labor Rate	0.0
Energy Rate	0.0
Technical Input	0.0
Other	0.0
Total Changes	0.0
Current Estimate	0.0

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2012 $M):